RAILROAD GAZETTE

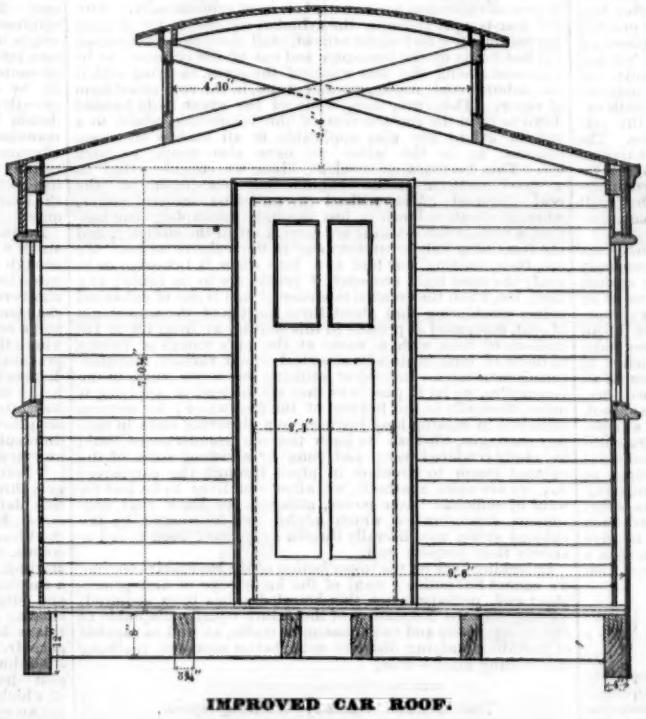
FRIDAY, APRIL 21, 1876.

Improved Car Roof.

In the *Railroad Gazette* of Sept. 4, 1875, a suggestion was made for the construction of a car roof with straight rafters crossing each other in the clear-story or raised roof. This suggestion was criticised quite severely by a correspondent of the *National Car Builder*, and pronounced generally impracticable. It is therefore gratifying for us to be able to present our readers with an engraving of a car roof of which a number have been constructed by Mr. J. B. Hill, Master Car Builder of the Erie Railway at Jersey City. The engraving requires no description. The plan of roof which it represents is used in baggage, mail and second-class passenger cars. We are indebted to the *National Car Builder* for the use of the engraving, and from the same journal we copy the following comments or statement of the value of this plan of roof, and of Mr. Hill's opinion of it:

"His experience in the construction of one car satisfied him that, as respects economy and durability, the plan is superior to any other for dome roofs, especially for the class of cars referred to. By using straight sticks, the full strength of the timber is made available without any weakness from cross-grain and curves, rendering the entire roof structure very stiff and substantial. The sticks are halved into each other at the crossings and secured by a bolt. The length of the car is 45 feet over all, and the distance from center to center of rafters 6 ft. 3 in. The ordinary head linings can be used if preferred, but Mr. Hill favors a finish of plain wood, consisting of narrow longitudinal strips of cypress or other light colored wood, with each alternate strip stained in imitation of walnut."

Whether Mr. Hill adopted this plan before it was suggested in the *Railroad Gazette*, is not very important, although of course we wish to give him the credit if he did; but the main question is, whether the plan is a good and economical one, which we believe it to be.



IMPROVED CAR ROOF.

Contributions.

The Iowa Railroad Law—The Other Side.

TO THE EDITOR OF THE RAILROAD GAZETTE:

In your issue of March 24, you publish a long screed from a correspondent of the Chicago *Inter-Ocean* on this subject, and back up the assertion of that veracious chronicler with lengthy editorial comments of your own. Both would doubtless be excellent articles for the side they are written on, did they not totally lack one essential, which among certain old fogies is yet regarded as being of some little importance, viz.: truth. I herewith send you the report of a majority of the Senate Railroad Committee, which, it is hoped, you will have the fairness to publish. It is both brief, logical and strictly true, and was adopted by a vote of eleven in favor of, to two against it. Up to the date of its publication, Feb. 10, and near the middle of the session, *not a single petition* had been presented from anywhere, asking for either the repeal or the modification of the law. Yet the correspondent you quote is mendacious enough to assert that "petitions by the hundred' to that effect poured in from everywhere.

[The report is as follows:

"MR. PRESIDENT: Your Committee on Railways, to whom was referred a resolution for inquiry into the 'advisability of repealing the railroad tariff law enacted by the last General Assembly and enacting a substitute therefor' have had said resolution under consideration and have agreed to report and do report to the Senate as follows:

"We have examined into the workings of said law as far as it has been complied with and are satisfied our people have been benefited by it, the interest of the State advanced, and can find many reasons why said law should be retained upon our statute books.

"While some of the railroads have complied with the law, others have refused to obey it and are fighting it step by step through the courts to the highest judicial tribunal in the land; the courts below have affirmed the constitutionality of its provisions and we anticipate a similar decision from the United States Supreme Court. This we regard as one great point gained in favor of the law. We find the law has reduced rates largely; has wiped out the unjust discrimination and extortions that existed throughout the State prior to its passage; it has opened up markets within the State for our products, facilitated the interchange of commodities at home, fostered the building up of manufactories at different points, aided the development of our agricultural resources, and is operating largely in favor of Iowa and Iowa people. Not a petition for repeal from our constituents has reached us, and we believe our people are content with the law and desire to have it thoroughly tested.

"The railroads of the State claim that the law reduced their rates on freight too largely, but as far as your committee is aware do not ask amendments; they desire the unconditional repeal of the law as far as freight rates are concerned, opposing any and all legislation and asking to be 'let alone' unrestricted.

"If the railroads desire amendments made to the law now in force, removing restrictions that should not exist, or in regard to rights which they claim have been infringed upon by past legislation, they are respectfully requested to make known to your committee their grievances, in order that justice may be done and wrongs remedied. "F. T. CAMPBELL,

"Chairman Railroad Committee."]

The columns of your own paper testify that when railroad combinations find it impossible to prevent the passage of laws to curb their rapacity, they set their tools to work with amendments and modifications expressly intended to make these laws as obnoxious and injurious as possible, and then cite their own work and deeds as good reasons why they should afterwards be repealed. The most strenuous friends of the Iowa law never pretended that it was anywhere near perfect. They were always ready to amend or improve it. But this was what the railroads did not want at all. They declared that the law, the way they obeyed it, was putting millions into their treasuries every year, yet they were the only parties who clamored for its repeal, and refused to make any suggestions looking towards improving it.

The Senate committee called on the railroad freight and ticket agents to give them information by which they could act intelligently, a very few responded at all. They examined the books of heavy dealers in Des Moines, and obtained all the statistics they could get from other points in the State that would give any. All of these were of the same tenor, that the law had operated well, and had given satisfaction; if the railroads had made the money out of it that they asserted, the people were satisfied. It is true that the committee did not consult any one in Chicago, though several influential and very disinterested lobbyists from that city favored them with their smiles and blandishments. Perhaps that was an inexcusable omission.

The people of Iowa have subscribed and donated upwards of twenty millions of dollars to build railroads in their State, and have been swindled out of it all. Not a road of any importance is managed or controlled by any resident among them. Among some of the very trifling acts which have led to the passage of these laws may be named such charges as 35 cents per 100 lbs. for first-class freight from Chicago to Council Bluffs, 500 miles, and nearly double that, or 60 cents per 100 lbs. for two-fifths that distance, or 200 miles. At the present time, law or no law, the rate is 55 cents from Chicago and 90 cents from the Mississippi river towns in Iowa, 200 miles less distance to haul. At present $80 a car is charged for lumber from that river to St. Joseph, and fifty per cent. more, or $120 a car is charged to Missouri River towns in Iowa, 150 miles nearer. The very first railroad ever built in the world, 12 miles long, half a century ago, was limited by the charter to a charge of a ha'penny, one cent, a ton a mile for freight, and all the owners became immensely rich. The Iowa railroads in 1873, with all the improvements made in fifty years, charged more than 2,200 per cent. more, or one cent per 100 lbs. a mile for short hauls (nearly this sum is still charged), and half the mileage of the State is bankrupt, while only two roads pay any dividend at all. It is some satisfaction to know that if the owners, whose money built these roads are thus impoverished, their servants who manage them are all rich and fast becoming millionaires. Are these facts evidences of honest management or the reverse?

To show their contempt of all law, it is a fact that a statute has been in existence in Iowa for more than five years prohibiting any pooling of earnings, and punishing its violation with a fine of $5,000 a month against each road so offending. Yet for that length of time, and longer, the three main lines across the State have openly violated it, and have incurred penalties, which if enforced as the laws are against individuals, would now amount to nearly a million of dollars. They could well afford to pay this penalty, and yet make vast sums by breaking the law. Yet they had the cheek to lobby through the Legislature, at the session just adjourned, a law condoning all these flagrant violations of laws, by the sole force of which they enjoy an existence and are enabled to fleece the public as they do. When laws favor them, no men believe in enforcing them so much as railroad managers. When they are supposed to favor the people, no set of law breakers violate them with more coolness and cheek—not even the cracksmen and pickpockets of the swell mob. PLAIN SPEECH.

A Bureau of Experimental Research.

TO THE EDITOR OF THE RAILROAD GAZETTE:

Allow me to cordially favor your proposal to establish some sort of an organization of this character. If honestly administered, and not made a soft place for some barnacle, at a very small expense, beyond a doubt, millions of dollars might be saved, both for railroads and the public.

In this connection please let me give you a brief chapter from my own experience. For many years, as opportunity offered, the writer has been collecting facts and making such experiments as his very meager chances gave, which satisfied him beyond a doubt that a very large percentage of the steam power in the present locomotive is wasted and thrown away.

Three years ago a very intelligent friend in a subordinate position in a leading railroad, who knew of these researches, called his attention to the extraordinary performance of a little old-fashioned locomotive, nearly 30 years old. She had hauled a picnic party of 1,406 persons, in 14 coaches, up a stiff grade and round several curves, and had done it with such ease and cheerfulness as to amaze all the boys. In switching and pulling heavy trains up grades and round sharp curves, no engine, ten tons heavier, could begin to compete with her. The engineer was a broth of a boy from the Emerald Isle, who had opened her throttle for eleven years, and knew what she could do even better than he knew what he could do himself. During his railroad service he had saved money enough to buy a farm, on which his parents lived. He was a most valuable man that a railroad company could very ill afford to abuse and ill-treat.

On examination of this engine, it was found to agree with the ideas of the writer so much that, at his own expense, he went several hundred miles to see the Superintendent and persuade him to allow some competitive tests with much heavier and more expensive engines to be made, none of which could cost anything except a little attention. That august individual kept him cooling his heels for two days in an ante-room before seeing him, when he was referred to the Master Mechanic. As he was told this reference was useless, he promised "to look into the matter," and would report his decision to the Division Superintendent. After three months' correspondence and lots of wrestling with red tape, a trial of the two engines was ordered and was made in this way: An entirely new engine registered at 37 tons, was brought out and given to a smart fellow, who was told expressly what he was to do. He hooked on to his train and took it up a stiff grade about two miles long, as quick as he could. The other engine, registered at 27 tons, but really weighing 18¼ tons, was then brought up, not having been in the shop for two years, nor was the engineer given the slightest hint of what he was to do. He hooked on to the same train and went slowly through town and up the grade half a minute slower than the other engine. This was called a competitive trial, which condemned the small engine! When the engineer, who thought as much of his engine as he did of his wife, heard of the trick that was played on him, he very naturally gave vent to his feelings in some very uncomplimentary adjectives. On being told that he had better say no more, and failing to heed the admonition, a charge of being drunk was trumped up against him, and he was discharged. He is now a Granger in Illinois, of a very decided type, and the writer is not so much in favor of improvements as he was, seeing that the only results were to injure a faithful employee, and to spend his own money for nothing.

As a general rule, if any innovation or improvement is proposed to a railroad man he lays back on his ponderous ears and crushes the innovator by demanding to know who is the likeliest to know about these things, a theorist or a practical man? The writer has several good things to offer, both to save life and property, but at present it is altogether useless to try to introduce anything of the sort. Now bring on your Bureau, and let us see how it will work. EXPERT.

The Cracking of Fire-Box Plates.

TO THE EDITOR OF THE RAILROAD GAZETTE:

I have read with interest, from time to time, the different reports of the Master Mechanics' Association on the cracking of fire-boxes and the causes thereof. I do not remember of seeing in the reports or discussions anything in regard to the blower being to blame for its share of cracked plates. May it not have something to do with that trouble? An engine is taken to the ash-pit and the fire dumped; there is generally a good head of steam on, say 120 lbs. (as from appearances an engine cannot be moved with less than that); the blower is turned on full, fire-door open and no fire. An engine is put away oftener during the evening, night, and early in the morning, than any other time; consequently the air is cooler than during the day; the water side of the fire-box is heated to not less than 350°, and the air, drawn in by the blower at an average of less than 60°, strikes the fire side of the plate, which a moment before was heated considerably above the water side.

Now, the question arises, may not this play a prominent part in plates cracking? Some may say, plates have cracked on engines without blowers. We will admit that, but was there not some cause similar to the above, such as running with fire-door open? One master mechanic that I know of will not allow a boiler to be filled after washing out until it has stood one day. If filling with water will cause damage, may not the blower? H. CHOATE.

The Late Theodore Cuyler.

The Philadelphia *Times* gives the following sketch of the late Theodore Cuyler, so well known from his long connection, as counsel, with the Pennsylvania Railroad Company:

"Theodore Cuyler was born in the year 1821, at Poughkeepsie. His education was begun in the place of his birth, but continued in this city, and he graduated with honors in the class of 1838, in the University of Pennsylvania. Upon leaving

college his mind took the direction of the law as a profession. That branch of labor suited his tastes and gave congenial employment to his mental faculties. He entered the office of Charles Chauncy, one of the leading lawyers in this city at that time, and, after closing his term and passing a complimentary examination, was enrolled as an attorney in 1842. He at once opened an office, and, by the management of his early cases, commanded a respectable practice in the civil courts of this city and State. At an early age he was also admitted to practice in the Supreme Court of the United States, and made a decided impression in that body by his legal learning and the breadth and solidity of his views upon great constitutional questions. His reputation gradually extended to adjoining States, and he was frequently engaged in responsible law cases in New Jersey, New York, Delaware, Maryland and Virginia. In these cases he measured swords with the brightest intellects of the bar, and always maintained his standing unimpaired. Mr. Cuyler was one of the counsel in the celebrated Christiana treason trials, and made the opening speech in that case, which added materially to his legal reputation in all parts of the country. He likewise studied closely and attentively the patent laws of the United States, and was retained in a number of leading suits of this character, among them that embracing the Woodworth planing machine. This was a battle of legal giants, and Mr. Cuyler held his place by the side of the best in the hot and protracted contest.

In the management of railroad issues and the application of laws to the thousands of cases that arise yearly between corporations of this character and kindred companies, and between them and the public, Mr. Cuyler displayed abilities possessed by few men in the legal profession. He united policy with the strict construction of chartered rights, and, while maintaining the latter in their proper position, at the same time gave to the public that full measure of protection they were entitled to on all occasions. In 1857 he was engaged in the celebrated case of Mott *vs.* the Pennsylvania Railroad. This raised questions of great importance and interest to the people of this and other States, and they were handled in a profound and masterly manner before the court by Mr. Cuyler. When the Pennsylvania Railroad Company became the lessee of the United Railroads of New Jersey the former corporation applied to the Vice Chancellor of that State for an injunction against the proposed National Railway Company. The argument of Mr. Cuyler in that case was a masterpiece of legal erudition and research, and covered a wide field which is not often harvested by lawyers even of the fullest and most varied practice in the highest judicial tribunals of the land. He examined abstruse principles of law, separated mixed issues of fact and suggestions, put in clear light public and private rights, laid the foundation of proper legislation of a State and national character, and thus opened an avenue through which both the Vice Chancellor and the public could comprehend the real justice of the whole issue between the companies. The question was broad and comprehensive, and Mr. Cuyler treated it in that manner. He drew upon the resources of a well-instructed mind for materials to build up an argument commensurate with the demands of the controversy, and the result was most complimentary to his standing as a sound constitutional lawyer.

Mr. Cuyler had quick perception and at the same time great readiness of legal analysis, and his judgment was uncommonly accurate in all matters relating to his profession. He seldom made a mistake at the bar. He seldom failed to discover at an early period of a trial the weak points of his opponent's case. He had a wonderful faculty for protecting his own view of an issue from the critical observation of those on the other side. He was as subtle in policy as he was able in other branches of his profession. He illustrated Dr. Johnson's description of an intellectual antagonist, who, 'when his pistol missed fire, knocked you down with the butt.' In all cases he was cool, collected and self-possessed. He had all his resources at command, and used them with judgment as to time and rare ability as to force. Mr. Cuyler had, too, great earnestness of manner. He seemed fully absorbed in what he was doing, as though he were himself the party interested and was pleading his own case. This gave him great strength with the court and before a jury. He laid down principles to the first with such an amount of devotedness to the elements of law as to give them double strength, and he appealed to the latter in such a plain, simple yet self-abnegating manner as to force conviction of their judgments with irresistible force.

The Locomotive.

From an abstract point of view, the locomotive is certainly much the same as it was when the three competitors appeared in 1829 to compete for the offer of £500 for the best locomotive engine, inasmuch as we have its working parts repeated in the locomotive of the day. Content with the form in which it was introduced, we have merely endeavored to effect improvements in its working parts, retaining the general features first adopted. That this was the only course that could meet with pecuniary success, was a patent fact to inventors keeping to the standard of the time; for how could it be otherwise with a machine which, immediately on its appearance, so completely upset the prodigies of the "regular coach" of those days? Yet, on the other hand, it met with opposition from owners of other modes of conveyance and parties who, as they said, would rather suffer themselves to be fired off in one of Congreve's rockets than trust themselves to the mercy of such a machine, going at such a rate. This gave hopes to others, moving as it were in advance of their time, to remove the most glaring defects of this construction by innovating a construction of their own. Public opinion, still infatuated with the success of the "old construction," to which inventors were daily contributing their quotas in the form of minor improvements, swept everything opposed before it, leaving the "locomotive" as a fact, and the labors of many others as an ornament to the shelves of the Patent Office.

It is far from our intention to undervalue the immense services which the modern locomotive has brought to international commerce, but leaving minor considerations of detail entirely out of view, may we ask: Do the results obtained in actual working correspond to the conditions necessary to economy in the steam engine? We fear we fall very far short of what may be expected. We very much question whether, with the experience we now have of dear labor, expensive coal, and anything but easy competition, we can afford to content ourselves with the imperfect combustion of the fuel in the furnace, the consequent defective mode of generating steam, and the loss of heat, which means the loss of available work carried away in the exhaust steam. In fact, the resolutions lately passed by two railway companies—one of which proposed to increase by 15 per cent. their third-class fares by fast trains, and the other to abolish second-class fares—are attributable, no doubt, to the fact that waste has begun to make itself felt, and must be counterbalanced by an increase in the receipts.

We have already hinted in which respect we have just reason to complain of the working capacity of the locomotive, and on these deficiencies we may be allowed to dilate, as it is certainly worth the while of those who are working in this branch to obtain the knowledge required, because their chances are greater than those of other people of so applying that knowledge as to hit upon new and useful ideas, of perceiving what is wanting or what is amiss in the old construction. Beginning then with the combustion of the fuel, we know that loss arises from the coal falling through the grate; another great loss, either as unburnt coal or ashes, the consequence of imperfect utilization of the heat of the coal is carried off in the form of unburnt gas up the chimney, and a residue is left in the form of soot, which is not only unburnt matter (carbon) but also prevents the heat getting access to the plates, and, consequently, is a further loss of efficiency. In our reasoning for the production of heat, we know that a pound of coal of good quality contains about 14,500 units of heat, each being equal to 772 foot-pounds; therefore, we obtain the corresponding value of heat—*i. e.*, quantity of coal—to one horse power per hour by $\frac{33{,}000\times60}{14{,}500\times772}$ which gives the perfect combustion of coal equivalent to about 1-5th lb. per horse-power per hour, whereas the quantity of coal burnt by even the best modern steam-engine is quite disproportionate to the power developed. To make up this deficiency we have increased to a reckless extent the supply of coal to our engines, making them capable of certainly exerting tremendous powers, but, be it not forgotten, with a lavishness which, were it not an established fact, would be incredible to the skill of the nineteenth century. We are well aware that the locomotive in special offers greater difficulty to the effectual combustion of the fuel than other engines; for the control of the necessary quantity of air to the fire-box travelling at full speed is anything but accomplished when we consider that the admittance of air should be regulated to a nicety, in order to obtain the greatest calorific power of coals without a tendency in the other direction of diminishing the temperature of the furnace, or the cooling of the heating surface. Again, the recourse to the "blast pipe" (to which we shall again refer), to excite the rapid combustion of the fuel must, with its almost incessant beats, necessarily carry off a greater quantity of unburnt gas and unutilized heat, which in the short passage of the boiler tubes had not time to ignite and to throw off the whole of their calorific powers.

The imperfections of our means of obtaining high temperatures may naturally be also considered losses in the generating of steam, as the latter depends on the former. But independent of this, we seem to be indifferent to the facts that for every unit of heat in the coals weare only making it back in decimal value, hence we proceed to waste our steam equally recklessly, and perhaps more so than our fuel. No sooner generated than we lose a portion of it by liquefaction; we pass it on to the cylinders, and although we may here work it expansively, so much is certain, we are not aware at the present time up to what degree of expansion we may work it most economically. With the dear-bought steam in the cylinder, we use it for driving the piston a few feet at the utmost, and now it cannot escape too fast for us up the blast-pipe and out of the chimney, to be scattered among the four winds of the earth, carrying with it our unburnt coal, smoke, gas and steam, in the condensed form of vapor. These are, then, some of the great evils handed down to us in the construction of the locomotive, which to a certain extent are also applicable to all classes of steam engines, as in the latter we have also much to wish for. This becomes self-evident when we consider that in a good modern steam engine only one-tenth of the coal disposed of is utilized in indicated motive power, whereas another tenth is lost through incomplete combustion, a further three-tenths are carried off in the chimney, and the remaining half is carried away in the exhaust steam. We are, then, wasting our fuel at a time when it behooves us to study the most rigid economy, if profits are to be made; at a time, too, when the eventful tendency of coal is one of enhanced value, considering that about three-fourths of the annual get of coal, computed at present in this country at from 120 to 140 millions of tons, with a waste at the pit's mouth of twenty millions of tons, is already absorbed in our various manufacturing industries. Instead of utilizing our waste steam in the locomotive, we let it pass into thin air instead of applying it more effectually in the heating of the feed-water; we content ourselves in making long journeys in a shivering state in railway carriages, whereas we know that our compartment could be easily rendered warm and snug by allowing some of the exhaust steam to circulate in pipes through the carriages; nay, we are more apathetic, we allow our lives to be lost for want of sufficient brake power, although we know that continuous steam-brakes, which might, too, be worked by the exhaust steam now literally thrown away, have been found to answer their purpose well.

In looking back on the imperfection of the locomotive engine, we cannot but notice a want of the knowledge of first principles; and, perhaps, when this knowledge has been acquired, we may find the locomotive of the future equally adaptable to our heavy goods and swift passenger traffic, as well as capable of providing outlying districts with better means of reaching the existing lines.—*Iron.*

The London Railway Clearing-House.

The *Railway Fly Sheet* has the following sketch of the above establishment:

As a name, the "Clearing-house" is familiar to all but the merest railway tyro, and there are few in the railway service who do not aid in its operations, and in some such way learn to regard it as an integral part of the railway system. This, however, is, to a great extent, merely departmental; for it is only the business of a comparatively small number to master its numerous ramifications and to take any sustained interest in the ultimate results obtained by it; the great bulk having only a limited notion of its origin, constitution, method and object. And yet, imagination fails to realize how the business of Great Britain could be carried on without some such machinery as is presented by this establishment. * * *

While the establishment of the Clearing House was not contemporaneous with the opening of the second or even third line of railway, it may certainly be said to have been the first organization which gave to the public the full benefit of the then new means of locomotion, by rendering the existing lines, for traveling purposes, practically one concern. It was in 1838, writes Mr. R. Morison, the first Manager of the Railway Clearing-House, "that it became evident, when the railways which extend from London to Liverpool had been completed and connected, that arrangements must be adopted to facilitate the passage of through traffic at the points where the three railways joined. It was found that not only must passengers be permitted to perform any journey within the limits to which continuous communication by railway extended, without being required to change their carriage, but that a similar principle must pervade the arrangements for working every description of through traffic, if the public were to be conciliated and the resources of the railway system developed to their full extent." This was a difficulty that needed an immediate solution and prompt remedy, for the public, ever ready to find fault, became eloquent on the inconvenience they were then suffering. The charge of carriage, with its attendant worries in connection with luggage, the shifting of goods, with the loss of time and increase of risk, were grievances which became constantly ventilated, and the favorite taunts of the period levelled at the executive, characterized the want of these conveniences as the "evils of the system," the "supineness of railways," and the "results of monopoly." The effect of this was that the directors of the respective railways endeavored to comply with the requirements of the public. The theory was reduced to practice in a simple form, and the public enjoyed, in a partial manner, the advantages of the clearing system. The effect upon the companies and their officers was, however, far from satisfactory, and is best described in Mr. Morison's own words:

"In the first place, the methods of keeping accounts adopted by the several railway companies were in no two cases exactly similar, and this diversity of system caused much difficulty and confusion when the accounts came to be compared for the purpose of effecting a settlement. Long delays occurred, and much angry correspondence not unfrequently passed between the managers before payment of the sums due by one company to the other could be obtained. In the next place, although all the connected companies had entered into an agreement to render accurate returns of the use they respectively made of one another's carriages and wagons, and to pay a fixed rate per mile for whatever distance they ran, still the conditions of the agreement were, from the first, very imperfectly fulfilled, and some of the companies came in the end to make an unacknowledged use of the carriages and wagons of others to an extent which amounted to a positive grievance."

While measures were under consideration to obviate these admitted evils, it occurred to Mr. Kenneth Morison, then an auditor in the London & Birmingham Railway, and Mr. Robert Stephenson, that a central office constituted on a similar plan to that of the Bankers' Clearing-House would furnish a remedy. The idea was submitted to Mr. Geo. Carr Glyn (subsequently Lord Wolverton), the chairman of the London & Birmingham Railway, who, with characteristic clearness, saw its advantages, and lent the whole weight of his influence to carry it into effect. This was, however, not done without surmounting many obstacles. The difficulties were numerous. Those who feared their dishonest gains were likely to be curtailed fought vigorously against it; some opposed it because it involved trouble, others upon principle—the universal one—that it was new. The more he considered the practicability of the idea, the more Mr. Glyn became convinced of its necessity, and it is said of him that he agitated, argued, and almost battled for the child he was determined to rear. Mr. Hudson, the railway king, also gave the proposal his powerful support, and both Mr. Creed and Captain Laws took an active part in removing the objections which the superior officers of some of the railways at first entertained to the system. At length the various difficulties were surmounted, and on the 2d of January, 1842, the system of the Railway Clearing-house came into operation on the railways extending from London to Darlington in one direction, and from Manchester to Hull in another.

The far-seeing wisdom of its promoters was soon exemplified, and through traffic began to be worked with facility, economy, dispatch and justice. The Clearing-House, said its originator and first Manager, Mr. Kenneth Morison, "had its origin in the desire of the railway companies to promote their own interests in the only way in which they can be effectually promoted or placed in a position of permanent security—that is, by consulting public opinion." It has grown with the growth of the railway system, and unless the public accommodation be restricted, and the exigencies of the commercial, manufacturing and agricultural interests disregarded, it must advance to the limits to which continuous communication by railway extends. How amply this opinion, expressed in 1846, has been realized is shown by the magnitude and extent of the ever-increasing operations of this now national establishment.

Business was commenced at a small house in Drummond street with a staff of four clerks. Mr. Morison lived long enough to see his scheme fully carried out—a large building specially built to accommodate a staff which, before his death, numbered some four hundred; a committee, comprised of the chairmen of all the companies interested, controlling the whole, and a centre established which at once became neutral ground, where the chief officers could meet and bring their united practical knowledge to bear upon questions affecting them individually and collectively. Having given the reasons which led to the Clearing-House being established, and the evils it was intended to remedy, we shall leave to future articles a description of the work now undertaken and accomplished in its different departments; it may, however, be indicated here by an extract from the *Times*, published in January, 1869:

"Neither the War Office, Colonial Office, nor the Admiralty gets through more work in the year than is accomplished by this plain unpretending-looking Clearing-House in Seymour street, Euston road. Unlike those great public offices, too, the Clearing-House enjoys the rare felicity of balancing its accounts, though they amount yearly to some twelve millions sterling, to almost the fraction of a farthing. There is never a surplus and there is never a deficiency. All the incomings and outgoings are balanced every month, and every pound, shilling and penny of the vast sums can be accounted for. All this is done, too, with very little cost by one able Chief Manager, Mr. P. W. Dawson, by four chief clerks and about 900 subordinate clerks; and this staff, at the very minimum of cost discharges duties without the proper performance of which our whole railway system would become at least, if not an evil, a most unmitigated nuisance and bungle. It is almost difficult to guess at the staff and the cost of the staff which a Government department would require to do the same work. What has always been desired by theorists—namely, one vast, amalgamated, general railway system, has been virtually brought about by the labors of this Clearing-House, with this difference—that as each line has its representative on the Clearing-House Committee, each member looks after the interests of the line from which he is accredited with a vigilance which no merely central board could ever do. In fact, a central board would be nothing but a gigantic monopoly full of prejudice and hostilities, and without much motive either to economy or efficiency. In such a case the division of labor became the only element of success. The lines being distributed among a number of proprietaries, the energy of different boards of directors, the watchfulness of the various bodies of shareholders, and the wholesome emulation between the companies are all brought to bear through the Clearing-House on the successful working of the lines, and the public derive the benefit of a through system of booking as if there were only one railway company and one set of shareholders throughout the kingdom. Our whole railway system would be as nothing without the Clearing-House, which affords another illustration of the great truth that the British railway public is the best served railway public in the world, and, on the whole, the least grateful."

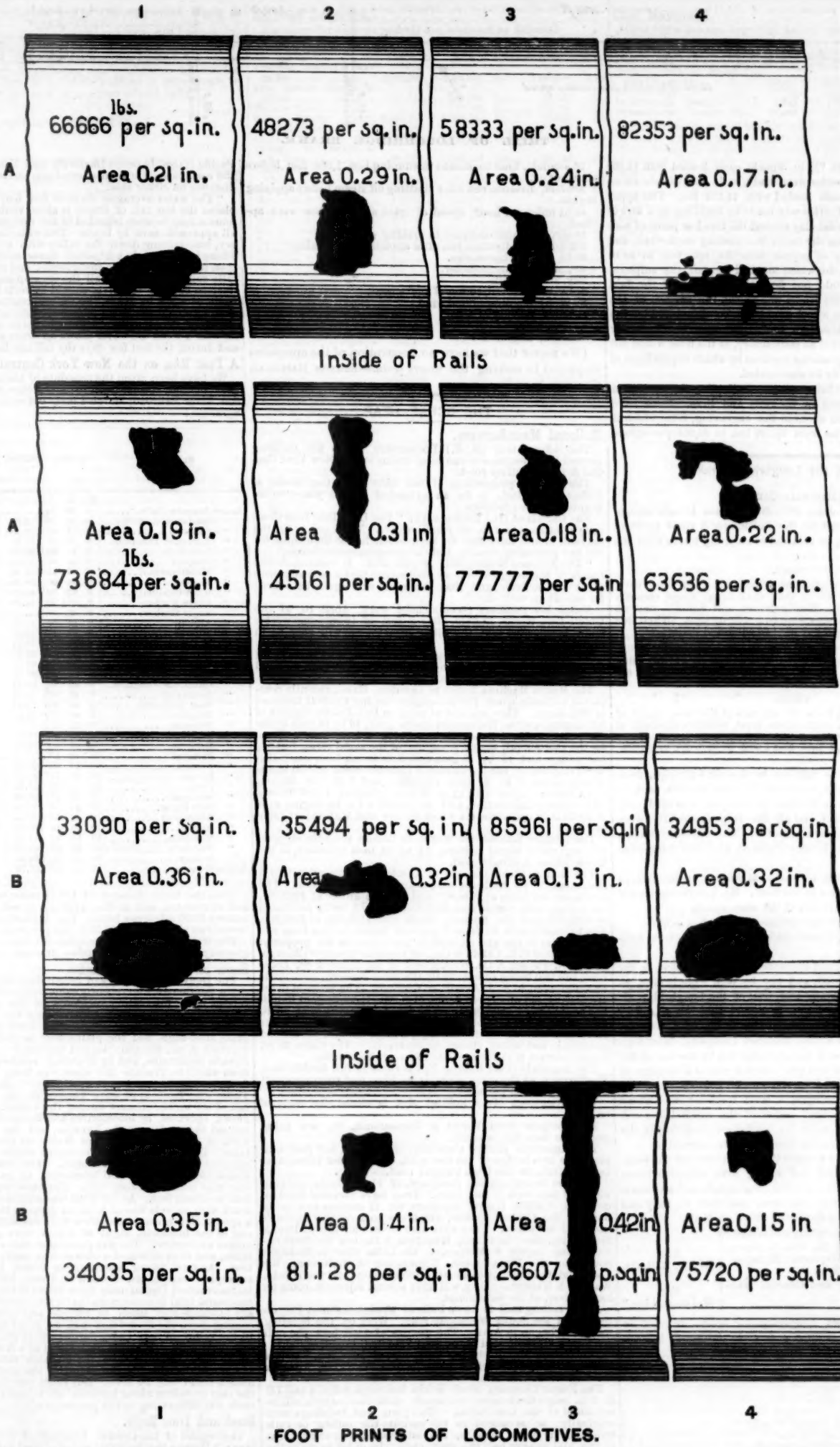
Headquarters of the Master Mechanics' Convention.

The Committee of Arrangements has issued the following circular, which is of later date than the one we published last week, and contains other information and some changes:

The Committee of Arrangements for the ninth annual meeting of the American Railway Master Mechanics' Association have been notified that the convention will meet in Philadelphia, on Tuesday, May 16, 1876.

Arrangements have been made for your accommodation, with the proprietor of the Aubrey Hotel, to be opened on the European plan, on Locust street, above Thirty-third, in West Philadelphia. This house is new; it is near the Pennsylvania Railroad depot, and close to three lines of horse-cars to the Park. If the city is crowded, the guests must not expect single rooms, as two at least will be placed in one room. The price of each room being fixed at from $3 to $4, according to their situation. Meals can be had at the restaurant of the hotel if desired. Great difficulty has been experienced by your committee in finding any hotel-keeper who is willing to agree, now, to accommodate the Association in May.

Please send notice as soon as possible to the chairman of the committee, that your room may be secured. If you will be



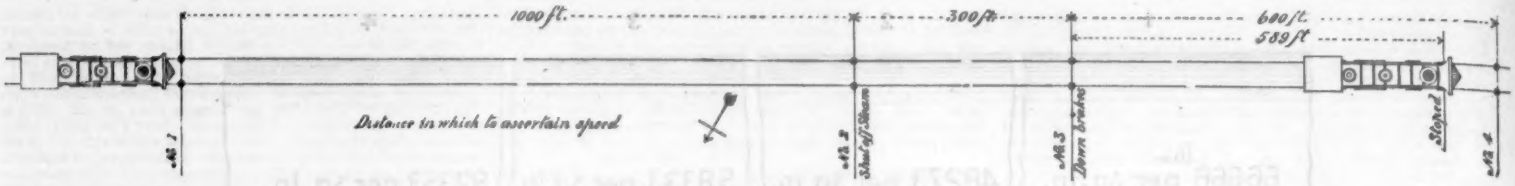
FOOT PRINTS OF LOCOMOTIVES.

accompanied by ladies, please state how many rooms you will require.

COLEMAN SELLERS, Chairman.
No. 1,600 Hamilton street, Philadelphia.
WM. E. BEMENT.
EDWARD H. WILLIAMS.

The Surface of Contact of Locomotive Driving-Wheels on the Rails.

A number of years ago Mr. Zerah Colburn made some ingenious calculations, which were published in *Engineering*, to determine the amount of the surface of contact of the driving-wheels of locomotives on the rails. Mr. Octave Chanute, when Chief Engineer of the Erie Railway, made some experiments to determine the same question. His method of making the experiments was to raise up the driving-wheel with a jack, place a piece of carbon or manifold paper covered with another piece of tissue paper under the wheel, and then lower its weight very carefully until it all rested on the paper and on the rail under it. Wherever the wheel pressed hard the carbon paper left its impression on the tissue paper, and thus indicated the extent and form of the surface of contact of the wheel on the rail. We have reproduced a number of these impressions in the engraving herewith, which represents very short sections of the rails with the impressions on them. Those in the two horizontal rows were made on steel rails with an engine having steel tires 4 ft. 6 in. in diameter, and with a load of 14,000 lbs. on each wheel. Those in the first vertical row (numbered at the top and bottom of engraving), in the *B B* series, were made by an engine with 5 ft. wheels, and having 11,912½ lbs. load on each wheel. The second *B B* series were made by an engine the tires of which were newly



TRIAL OF LOUGHRIDGE BRAKE.

turned and having 4 ft. 7¼ in. wheels, each loaded with 11,358 lbs. The third *B B* series were made with 5 ft. wheels whose tires were worn and each loaded with 11,175 lbs. The upper one of the fourth *B B* series was made by building up a sort of reservoir or dam of moist clay around the tread or point of contact of the wheel, when the latter was resting on the rail, and then pouring sulphate of copper into the reservoir so as to color the rail. When the wheel touched the rail, the sulphate of copper of course could not flow, and therefore if the fluid was drawn off before the wheel was raised, the surface of the rail in contact with the wheel would not be discolored by the sulphate of copper. Although the experiment was carefully tried, it was not regarded as satisfactory, as the fluid would not flow into the extremely narrow crevices by which the surfaces of contact must necessarily be surrounded.

The experiments are interesting as indicating the amount of pressure per square inch on the rails and tires. These have been calculated and are given in the engraving, from which it will be seen that it varies from 26,607 lbs. to 85,961 per square inch.

Tests of the Loughridge Brake.

TO THE EDITOR OF THE RAILROAD GAZETTE:

On the 17th day of July, 1873, Mr. William Loughridge, of Baltimore, Md., proposed to the Baltimore & Ohio Railroad Company the following in relation to stopping trains with his air brake:

FIRST.

"I propose that you give me a train of six or more cars, when I will make five stops that shall equal those recently made at Boston by the Westinghouse and Smith's vacuum brakes, when the two trains were run side by side. When this is accomplished you shall pay me two thousand dollars.

SECOND.

"And when I make five stops, when running at the same speed they did, within *one-half the distance*, you shall pay me two thousand dollars more.

THIRD.

"And when I stop a train of ten cars at the best speed of your best engine, when running on level, within a distance of *six hundred feet*, and within *sixteen seconds' time*, you shall pay me the balance. Accept this, and I will go to work to accomplish it."

The first condition was fulfilled by making four trips, from Baltimore to Washington, with four different engines, each of which made 12 stops, which, when the time was averaged, only varied about one second, and all the stops (some fifty) were within the time and distance required. The second condition was fulfilled within the distance required, and with thirty-nine feet to spare.

The stop at Boston was estimated at 900 feet in distance, at a speed of thirty-two miles to the hour. Mr. Loughridge made it within a distance of 411 feet at the same speed.

The following explains the fulfillment of the last stop:

"JOHN KING, Jr., Esq., Vice-President Baltimore & Ohio Railroad:

"SIR—We the undersigned appointed, respectively, two by the Baltimore & Ohio Railroad, and two by Wm. Loughridge, as judges to witness a certain test trial of the Loughridge air brake, respectfully beg leave to report that on the 29th day of February, 1876, agreeable to the terms of a contract with the said Baltimore & Ohio Railroad Company, dated September 13, 1873, "the said Loughbridge did by the use of his air brake stop a train of ten (10) coaches within a distance of six hundred (600) feet, and in sixteen (16) seconds time, said train running at the time upon a level track at the highest speed attainable, by the best engine of the said Baltimore & Ohio Railroad Company, under the conditions prescribed in the said contract, and modification thereto, above referred to.

"We further beg leave to state that the levels and the measurements of distance, time and speed, were all either taken or verified by us personally, and that the experiment was made with the utmost care and precision, and that we fully and unanimously concur as to the result above set forth.

"Respectfully submitted by

"Chief Engineer, U. S. N., WM. H. SHOCK, } For
GEO. I. FORBACRE, General Manager } B. & O. R. R. Co.
W. C. V. M. & G. S. R. R. }

J. M. HOOD, President and General Manager W. M. R. R. } For
E. W. BARKER. } W. Loughridge."

Detail of experiment with Loughridge air brake, as tried on Washington Branch, Baltimore & Ohio Railroad, between Branchville and Alexandria Junction, Feb. 29, 1876.

823, number of engine.
Southward, direction of movement.
76,700 lbs., weight of engine.
38,370 lbs., weight of tender.
37,608 lbs., average weight of cars.
245 1150-2240 tons, total weight of train.
4, number engine driving wheels.
69 in., diameter engine driving wheels.
17×24 in., size of engine cylinders.
11×11½ in., size of air cylinder under cars.
10, number of cars.
635 feet, total length of train.
96, total number of wheels in train.
92, number of wheels to which brakes were applied.
130 lbs., state of steam gauge at start.
120 lbs., state of steam gauge on shutting off.
125 lbs., state of steam gauge when train stopped.
60 lbs., state of air gauge at start.
80 lbs., state of air gauge at time of applying brakes.
80 lbs., state of air gauge when train stopped.
12,180 feet, distance run for speed.
16 seconds, time consumed in running last 1,000 feet before shutting off.
300 feet, distance run after shutting off steam before applying brakes.
42.61 miles per hour, speed of train when brakes were applied.
16 seconds, time occupied in making stop.
589 8-12 feet, distance run after application of brakes.
30.19, state of barometer.
40°, state of thermometer.
Dry, state of rail.
S. 10° W., exact direction of movement.
N. W. by W., direction of wind.
14 miles, velocity of wind.
Level, grade.
Straight, alignment.

[We regret that we have no description of the apparatus employed in making the above tests.—EDITOR RAILROAD GAZETTE.]

THE SCRAP HEAP.

Railroad Manufactures.

The Schenectady (N. Y.) Locomotive Works are building several light engines to run local trains on the New York Central & Hudson River road.

The present proposition of the Ohio Falls Car Works at Jeffersonville, Ind., is for an extension of five years, to be granted by the creditors.

The Cleveland (O.) *Review* says: "The Lake Erie Iron Company continues to run on small orders. Their orders for the current month have thus far been much better than those for the two preceding months, and the prospect seems better."

"The Alliance Rolling Mill is still idle. It remains in the hands of the assignee, but we understand that a new appraisement is to be made, and that the works will again be offered for sale at an early day."

About 150 puddlers recommenced work, April 10, at the Union Iron Works, Buffalo, after a rest of twenty-one weeks, and it is expected that the other departments will soon be in full blast.

The St. Albans (Vt.) Rolling Mill is now at work on rails for the Central Vermont Company and has orders enough on hand to keep the mill running six months.

The Mason Machine Works at Taunton, Mass., recently completed a double-truck Fairlie engine for the Central Railroad of Minnesota. They are now at work on two Fairlie engines of 3-feet gauge, with Walschaert valve gear, 10 by 16 inch cylinders, one for the Boston, Revere Beach & Lynn road and one for the Centennial; another engine of the same class, but 3½ feet gauge and 12 by 16 inch cylinders for an Iowa road; also three engines for the Burlington & Lamoille road, one an eight-wheel engine, 17 by 24 inch cylinders and 5 ft. 8 in. drivers, one a Fairlie engine with 15 by 22 inch cylinders, 4 feet drivers and ordinary link motion, and the third a Fairlie engine with 17 by 24 inch cylinders, six 4 feet drivers and Walschaert valve motion.

The Hinkley Locomotive Works in Boston recently shipped two engines of Mogul pattern, 17 by 24 inch cylinders, to the Utica, Ithaca & Elmira road.

The Iron & Steel Company of Ironton, O., has submitted a statement to its creditors and asked for an extension. The assets are set down at $338,813 and the liabilities at $262,681, the rolling mill, which cost $172,686 in 1873, being estimated at $125,000, and the furnace, which cost $136,000, at $100,000. The proposition is to issue 8 per cent. notes, having from two to five years to run and secured by mortgage on the property.

The firms of F. E. Canda & Co., car manufacturers, of Chicago, and H. R. Payson & Co., contractors for the Cairo & St. Louis road, the two being substantially the same concern, have made an assignment to A. J. Averill, of Chicago. The secured debts are $313,225.39; unsecured debts, $148,099.71; contingent liabilities as indorsers, $66,766.71. The separate liabilities of H. R. Payson & Co. are $194,531.53. The assets include the car works and other real estate in Chicago, a large amount of railroad securities and other claims on contracts. The Cairo & St. Louis contract is the immediate cause of the trouble.

The Scottdale (Pa.) Rolling Mill is running full double turn. The furnace, at the same place, is in blast and running about 45 tons of pig iron per week.

The Allentown (Pa.) Rolling Mill is closed for want of orders.

The Burgess Steel Works at Portsmouth, O., are being worked to their full capacity.

The American Bridge Company, of Chicago, has just completed an iron bridge of 155 feet span, over Webber River, near Ogden, Utah, for the Utah Central road.

The Rue Manufacturing Company, of Philadelphia, are running full time with a full force. They have recently filled an order for "Little Giant" injectors for 12 engines now being built for the Central Pacific, which are to have two injectors each and no pump. They have also orders for the St. Paul & Sioux City, the Cincinnati, Hamilton & Dayton, the Burlington, Cedar Rapids & Minnesota, the Lake Shore & Michigan Southern, the Philadelphia, Wilmington & Baltimore, the Cleveland, Columbus, Cincinnati & Indianapolis and the Toledo, Wabash & Western. They will have several injectors, some on locomotives, at the Centennial.

A new rolling mill is to be built at Fredericksburg, Pa., on the line of the South Mountain road. Work on the building was to be begun in April. The parties who will own the mill are nearly all interested in the South Mountain road.

The Watson Manufacturing Company, of Paterson, has just completed a double track iron bridge over the Bronx River on the New York & Harlem road.

The Edgar Thomson Steel Works last week rolled a rail 121 ft. 6 in. long—the longest ever made, doubtless—which will be exhibited at the Centennial. The plan and buildings were originally so arranged as to permit the rolling of rails ordinarily in 60 ft. lengths, the intention being to cut them in two, and so save half the crop ends. In order to make the rails of exactly even lengths, the Works have put in a saw for cutting the rails cold. When rolled in 60 ft. lengths the rail will be cut in the middle while hot, then straightened, and when cold the crop end will be sawed off. When the rail-ends are both cut hot, the differences of temperature are such that there are considerable differences in the lengths of the rails.

Mr. C. P. Huntington is reported to have just completed a contract with the Tredegar Company, of Richmond, Va., for rails and splices for 125 miles of the Southern Pacific.

Railroad Through a Sea.

The Vallejo (Cal.) *Chronicle*, of recent date, says: "A singular sight is now presented to passengers on the California Pacific trains between Davisville and Sacramento. For miles the road passes through a broad sea, stretching for an immense distance on either side.

"The water averages three or four feet in depth. In some places the top rail of fences is alone visible, and occasionally houses may be seen islanded in the vast ocean and cut off from all approach save by boats. The water is not merely stationary, but moving down the valley with more or less rapidity. There is apparently a hundred times more water on the tules than in the Sacramento River itself; and the reflection is naturally suggested that if all the swamp and tule land on the western bank of the river should be reclaimed and protected from overflow by dykes, the waters confined in such a narrow channel would rise to an unprecedented height and deluge the streets of Sacramento. Although there has been no rainfall for over a week the water draws off from the tules very slowly, and during the last few days the fall has been very slight."

A Fast Run on the New York Central.

We have been given the schedule of the actual time made by the "Bennett special train" over the New York Central & Hudson River Railroad, March 1 last, between Niagara Falls and Syracuse:

STATIONS.	Leave.	Miles.	Miles bet'n stations.	Time bet'n stations.	Rate of speed per hour.
	H. M. S.			M. S.	
Leave Niagara Falls	8 20 00				
" Suspension Bridge	8 23 00	2.00	2.00	3 00	40.00
" Sanborn	8 33 00	10.23	8.23	10 00	49.38
" Lockport Junction	8 39 30	17.34	7.11	6 30	65.63
" Lockport	8 43 00	20.95	3.61	3 30	61.88
" Gasport	8 48 45	26.91	5.96	5 45	62.19
" Middleport	8 53 45	31.95	5.04	5 00	60.48
" Medina	8 58 00	36.40	4.45	4 15	62.82
" Knowlesville	9 02 00	40.61	4.21	4 00	63.15
" Eagle Harbor	9 05 30	44.00	3.39	3 30	58.11
" Eagle Harbor	9 09 00			3 30	
" Albion	9 12 30	46.21	2.21	3 30	37.88
" Murray	9 17 45	51.74	5.53	5 15	63.20
" Holley	9 21 15	55.31	3.57	3 30	61.20
" Brockport	9 26 40	59.93	4.62	4 25	62.76
" Adams Basin	9 30 00	64.50	4.57	4 20	63.26
" Spencerport	9 32 25	66.84	2.34	2 25	58.18
" Charlotte Junction	9 40 30	75.17	8.33	8 05	61.93
" Rochester	9 43 30	76.92	1.75	3 00	35.00
" East Rochester	9 46 30	79.29	2.37	3 00	47.40
" Brighton	9 48 15	80.51	1.22	1 45	41.83
" Fairport	9 55 00	86.99	6.48	6 45	57.60
" Macedon	10 02 15	94.66	7.67	7 15	63.48
" Palmyra	10 07 40	99.76	5.10	5 25	56.49
" Palmyra	10 10 45			3 05	
" Newark	10 19 00	107.19	7.43	8 75	54.04
" Lyons	10 24 15	112.73	5.54	5 15	63.31
" Clyde	10 30 45	119.84	7.11	6 30	65.03
" Savannah	10 36 15	125.87	6.03	5 30	65.79
" Port Royal	10 42 30	132.93	7.06	6 15	67.77
" Weedsport	10 45 40	136.13	3.20	3 10	60.63
" Jordan	10 49 45	140.68	4.55	4 05	66.86
" Memphis	10 54 30	145.82	5.14	4 45	64.93
" Warner's	10 56 45	148.38	2.56	2 15	68.26
" Amboy	10 58 45	150.60	2.22	2 00	66.60
Arrive Syracuse	11 03 00	157.74	7.14	6 15	68.54

Thus the total distance of 157.74 miles was run in 2 hours and 45 minutes, and at the average speed, *including stops*, of exactly 57.36 miles per hour. The highest average speed between two stations was 68.54 miles per hour.

The train was hauled by engine No. 110,—James Wood, engineman, and Patrick McQuinlan, fireman.

Snow on the Central Pacific.

The Denver (Col.) *News* of recent date says:

"A gentleman who recently came over from the Pacific slope relates some interesting incidents of the trip over the two great ranges of mountains. All along the Sacramento valley everything was smiling. The cattle were luxuriating in the grass knee-high, and the plains were decked with flowers. At 3 o'clock p. m., the train turned eastward to ascend the Sierra Nevada mountains, and by 10 o'clock reached the Blue Canon, from which to Truckee the snow was from four to twelve feet deep, and in the gulches it was in some places 100 feet deep. Those who have kept snow gauges on the Nevadas report a fall of 389 inches of snow during the winter. Immense snow-plows, operated by locomotives and hundreds of Chinese, had opened the roads over the Nevadas, and the train was on time until it reached the town of Wells, on the Humboldt mountains. There they overtook the trains which had left San Francisco for the four days previously. The road from Wells to Toano (36 miles) was still blockaded, no trains having passed over that section for four days. The snow was any depth from four to fifteen feet. As he wind was still blowing, to open the track with shovels was as futile as dipping the ocean dry with a spoon. Seventeen locomotives were assembled at the western end of the blockade, eight of which were put behind an immense snow-plow. The five passenger trains were massed into three, and thus arranged a charge was made on the obstruction. As such power was hard to resist, in three hours the snow-plow was pushed through to Toano, and the caravan of trains reached Ogden only three hours behind time. But the successful trial demonstrates that trains can be pushed through any blockade ever likely to impede any road. The change coming down the mountains was as great as going up them. In the valley of Salt Lake, farmers were plowing, and the atmosphere mild. Starting out again in a few hours, the deep snows were encountered on the Wasatch range, so deep that at some of the villages the comb of the roofs of some of the houses could only be seen. But there was no obstruction; yet the cars crowding along between snow-banks as high as the roofs was interesting to the passengers."

Steel and Iron Rails.

The report of the Central Railroad of New Jersey for 1875 says: "During the year 51½ miles of steel rails have been laid on the Central & Lehigh divisions. There are now 147½ miles laid on the Central Division, and 143½ miles on the Lehigh & Susquehanna Division, making 291 miles in all. For the coming year 3,500 tons have been ordered. The rails continue to give perfect satisfaction. They rarely break, and it is only after long use that the heads wear down sufficiently to make it desirable to change them into tracks where the wear will be less. The crushing of heads and brooming of surfaces are things entirely unknown. The main tracks are now almost entirely laid with steel, and the satisfaction with the operation of the rails is so great that steel will also be gradually substituted for iron on the branch roads and principal sidings. To these purposes the lighter steel rails first laid are being shifte

from the main tracks, as also any of the rails which begin to show marks of use.

"The very low price of steel rails and the little difference between their price and that of iron rails is a further encouragement to their use, especially as, so far, no means have been discovered of materially reducing the quality as the market price has fallen. There is therefore a safety in purchasing at low prices which did not exist in the case of iron rails."

ANNUAL REPORTS.

Morris & Essex.

This company owns or leases the following lines:

	Miles.
Main Line, Hoboken, N. J., to Phillipsburg	84
Boonton Branch, Bergen Junction to Denville	34
Total owned	118
Newark & Bloomfield R. R., Roseville to Montclair	6
Chester R. R., Dover to Chester	13
Total	137

The road is leased to the Delaware, Lackawanna & Western Company, the lessee paying all interest and 7 per cent. dividends on the stock.

From the report made to the Secretary of State of New Jersey, the only one published by the Company, the following figures are obtained for the fiscal year ending Dec. 31, 1875:

Capital stock ($127,119 per mile)		$15,000,000 00
Funded debt ($153,490 per mile)		18,112,000 00
Total ($280,610 per mile)		$33,112,000 00
Deduct amount expended on new Bergen tunnel and other work, not yet available	$1,313,959 99	
Sundry assets	1,320,475 60	
		2,634,435 59
Balance ($252,284 per mile)		$30,477,564 41

The earnings for the year were as follows:

	1875.	1874.	Inc. or Dec.	P. c.
Passengers	$857,192 55	$938,389 19	Dec.. $81,196 64	8.7
Freight and coal	3,289,762 04	2,770,657 93	Inc.. 519,104 11	18.7
Other sources	193,396 22	237,114 40	Dec.. 43,718 18	18.4
Total earnings	$4,340,350 81	$3,946,161 52	Inc..$394,189 29	10.0
Maintaining road	690,364 91	550,998 86	Inc.. 139,366 05	25.3
Repairs of machinery	312,338 83	399,863 16	Dec.. 87,524 33	21.9
Operating road	1,861,933 18	1,703,141 93	Inc.. 158,791 25	9.3
Taxes	172,819 82	87,269 11	Inc.. 15,550 71	17.8
Total expenses	$2,967,456 74	$2,741,293 06	Inc..$226,163 68	8.3
Net earnings	$1,372,894 07	$1,204,888 46	Inc..$168,005 61	13.9
Gross earnin's per mile	$31,681	$28,804	Inc	$2,877	10.0
Net earnings per mile	10,021	8,795	Inc..	1,226	13.9
Per cent. of expenses	68.37	69.47	Dec..	1.10	1.6

The increase in freight and coal earnings is doubtless largely due to the fact that the lessee's entire eastward-bound coal traffic passed over the road last year, no coal having been sent over the Central road as in former years.

The annual interest charge is $1,267,840, all the issues of bonds bearing 7 per cent. interest. The actual payments were probably less than that amount, as the bonded debt has been increased by $3,239,000 during the year, on account of the improvements now in progress. It is evident, however, that the balance of net earnings after paying interest was not enough to meet the rental dividends on the stock, amounting to $1,050,000, and that a considerable deficit had to be made good by the lessee.

St. Louis, Iron Mountain & Southern.

This company, formed by the consolidation of the St. Louis & Iron Mountain, the Cairo & Fulton and the Cairo, Arkansas & Texas railroad companies, owns a railroad from St. Louis south and southwest 490 miles to a junction with the Texas & Pacific at Texarkana, on the border between Arkansas and Texas; a branch of the above from Bismarck, 75 miles south of St. Louis, southeast 120 miles to the Mississippi at Belmont (connecting with the Nashville, Chattanooga & St. Louis and the Mobile & Ohio); and a branch from Poplar Bluff, 166 miles south of St. Louis, northeast 71 miles to the Mississippi opposite Cairo, and a short branch 3½ miles long from Mineral Point, 61 miles south of St. Louis, west to Potosi—684½ miles in all. The report for the year 1875 shows that at its close the company owned 122 locomotives, two of which were laid up and condemned and one rebuilding; 22 first-class, 16 second-class, 1 directors', 2 sleeping cars and a half interest in 7 Pullman cars, 1 Blood's day car, 3 passenger and baggage cars, 13 baggage and express, 3 mail and baggage, and 5 mail and express cars; 2,661 freight cars, 51 caboose cars, 8 boarding cars and 1 derrick car.

The company has a land grant, mostly in Arkansas, amounting to about 1,800,000 acres yet unsold, estimated in the report as worth $4,700,000. It sells very slowly. The property is represented by:

Capital stock ($31,668 per mile)	$21,677,303
Funded debt ($36,273 per mile)	24,829,000
Funded coupons ($2,058 per mile)	1,408,950
Total ($69,999 per mile)	$47,915,115

There is a floating debt exceeding floating assets and renewas funds by about a million.

The work done on the road was:

Train mileage—		
Passenger	762,137	796,851
Freight	1,096,220	942,485
Total per mile of road	2,717	2,541
Total engine mileage	2,552,775	
Passenger mileage	25,320,188	23,897,696
Tonnage mileage	124,607,477	85,144,399

The increase in passenger traffic was 6 per cent.; of freight traffic, 46 per cent.—the latter carried with an increase of only 16 per cent. in freight train mileage. The average passenger-train load was 33¾ passengers; the average freight-train load, 114½ tons, in 1875, against 30 passengers and 90⅛ tons in 1874.

The traffic was equivalent in 1875 to 50.7 passengers and 249 tons of freight carried each way daily over the entire mileage.

The receipts and expenses were:

	1875.	1874.	Increase.	P. c.
Freight	$2,738,837 61	$2,240,941 50	$497,896 11	22.2
Passengers	880,039 13	879,836 70	202 43	....
Mails and Exp'ss	160,168 09	101,565 79	58,602 30	57.7
Miscellaneous	23,896 53	21,226 82	2,669 71	12.6
Total	$3,802,941 36	$3,244,070 81	$558,870 55	17.2
Work. expenses	2,013,853 83	2,106,206 34	Dec. 92,352 51	4.4
Net earn	$1,789,087 53	$1,137,864 47	Inc.$651,223 06	57.0

By agreement with the bondholders, only part of the interest accrued in 1875 was paid, the remainder being funded.

TRAFFIC AND EARNINGS.

Erie Canal Tolls.

The New York Legislature has passed the concurrent resolution fixing the canal tolls at last year's rates.

Railroad Earnings.

Earnings for various periods are reported as follows:

Three months ending March 31:

	1876.	1875.	Inc. or Dec.	P. c.
Atchison, Topeka & Santa Fe	$441,549	$251,121	Inc.. $190,428	75.8
Bur., Cedar Rapids & Minn	299,469	262,484	Inc.. 36,985	14.1
Canada Southern	430,333	212,049	Inc.. 218,284	103.0
Central Pacific	3,094,000	3,006,360	Inc.. 87,640	2.9
Central, of Iowa	177,180	.....	.....	....
Chicago & Alton	1,006,166	1,011,774	Dec.. 5,608	0.6
Chicago, Milwaukee & St. Paul	1,612,388	1,292,139	Inc.. 320,249	24.8
Cincinnati, Lafayette & Chicago	98,929	91,474	Inc.. 7,455	8.1
Denver & Rio Grande	94,613	70,524	Inc.. 24,089	34.2
Hannibal & St. Joseph	463,727	349,597	Inc.. 114,130	32.6
Illinois Central	1,802,067	1,668,231	Inc.. 133,836	8.0
Ind., Bloom. & Western	379,548	318,116	Inc.. 61,432	19.3
Int. & Great Northern	354,063	346,672	Inc.. 7,391	2.1
Kansas Pacific	633,645	627,332	Inc.. 6,313	1.0
Michigan Central	1,650,372	1,553,736	Inc.. 96,636	6.2
Missouri, Kan. & Texas	756,996	628,009	Inc.. 128,987	20.5
Ohio & Mississippi	923,216	800,880	Inc.. 122,336	15.3
St. Louis, Alt. & T. H., Belleville Line	120,273	162,286	Dec.. 42,013	25.9
St. Louis, Iron Mountain & Southern	938,306	808,611	Inc.. 129,695	16.0
St. Louis, Kansas City & Northern	803,336	648,234	Inc.. 155,102	23.9
Toledo, Peoria & Warsaw	314,185	206,051	Inc.. 108,134	52.4

Two months ending Feb. 29:

Atchison, Topeka & Santa Fe	$261,549	$147,069	Inc.. $114,480	77.8
Expenses	130,988	85,592	Inc.. 54,396	63.8
Net earnings	$121,561	$61,477	Inc.. $60,084	97.7
Per cent. of expenses.	53.52	58.20	Dec.. 4.68	8.0
Burlington, Cedar Rapids & Minn	193,626	165,266	Inc.. 28,360	17.2
Expenses	132,006	117,967	Inc.. 14,039	11.9
Net earnings	$61,620	$47,299	Inc.. $14,321	30.3
Per cent. of expenses.	68.18	71.37	Dec.. 3.19	4.5
Chicago, Burlington & Quincy	1,758,585	1,625,108	Inc.. 133,477	8.2
Expenses	865,386	912,609	Dec.. 47,223	5.2
Net earnings	$893,199	$712,501	Inc.. $180,689	25.4
Per cent. of expenses.	49.21	56.16	Dec.. 6.95	12.4
Cleveland, Mt. Vernon & Del	54,983	51,261	Inc.. 3,722	7.3
Expenses	46,271	47,161	Dec.. 890	1.9
Net earnings	$8,712	$4,100	Inc.. $4,612	112.5
Per cent. of expenses.	84.13	91.93	Dec.. 7.80	8.5
Houston & Texas Cent.	564,649	434,891	Inc.. 129,758	29.8
Expenses	343,744	337,149	Inc.. 6,595	2.0
Net earnings	$220,905	$97,742	Inc.. $120,163	123.3
Per cent. of expenses.	60.88	77.52	Dec.. 16.64	21.5
Int. & Great Northern	256,532	241,073	Inc.. 15,459	6.4
Expenses	138,103	157,290	Dec.. 19,187	12.2
Net earnings	$118,429	$83,783	Inc.. $34,646	41.3
Per cent. of expenses.	53.80	65.21	Dec.. 11.41	17.5
Missouri, Kan. & Texas	511,182	394,914	Inc.. 116,268	29.4
Expenses	235,392	207,800	Inc.. 27,592	13.3
Net earnings	$275,790	$187,114	Inc.. $88,676	47.4
Per cent. of expenses.	46.05	52.62	Dec.. 6.57	12.5
Nashville, Chattanooga & St. Louis	335,208	289,091	Inc.. 46,117	16.0
Expenses	195,998	211,621	Dec.. 15,623	7.4
Net earnings	$139,210	$77,470	Inc.. $61,740	79.7
Per cent. of expenses.	58.47	73.20	Dec.. 14.73	20.2
Philadelphia & Erie	458,109	378,855	Inc.. 79,254	20.9
Expenses	340,184	297,812	Inc.. 42,372	14.2
Net earnings	$117,925	$81,043	Inc.. $36,882	45.5
Per cent. of expenses.	74.26	78.60	Dec.. 4.34	5.5
St. Louis, Iron Mountain & Southern	639,306	532,701	Inc.. 106,605	20.0
Expenses	317,818	302,523	Inc.. 15,295	5.1
Net earnings	$321,488	$230,178	Inc.. $91,310	39.7
Per cent. of expenses.	49.71	56.79	Dec.. 7.08	12.5
St. Louis, Kansas City & Northern	528,978	404,243	Inc.. 124,735	30.8
Expenses	282,007	.....	.....	.....
Net earnings	$246,971	.....	.....	.....
Per cent. of expenses.	53.31	.....	.....	.....
St. Louis & Southeast'n	164,490	164,623	Dec.. 133	0.1
Expenses	140,726	140,851	Inc.. 175	0.1
Net earnings	$23,764	$24,072	Dec.. $308	1.2
Per cent. of expenses.	85.55	85.39	Inc.. 0.16	0.2
St. Paul & Sioux City	83,220	42,423	Inc.. 40,797	96.2
Expenses	53,613	49,771	Inc.. 3,842	7.7
Net earn. or deficit	$29,607	$7,348	....	.....
Per cent. of expenses.	64.44	117.32	Dec.. 52.88	45.1
Sioux City & St. Paul	53,038	19,518	Inc.. 33,520	171.9
Expenses	40,142	27,430	Inc.. 12,712	46.4
Net earn. or deficit	$12,896	$7,912	....	.....
Per cent. of expenses.	75.74	140.54	Dec. 64.80	46.1

Month of February:

Atchison, Topeka & Santa Fe	$144,132	$78,410	Inc.. $65,722	83.8
Expenses	68,375	38,459	Inc.. 29,916	77.7
Net earnings	$75,757	$39,951	Inc.. $35,806	89.5
Per cent. of expenses.	47.44	49.05	Dec.. 1.61	3.3

Month of March:

Atchison, Topeka & S. F.	$180,000	$104,052	Inc.. $75,948	73.0
Burl., Cedar Rapids & Minn	105,813	97,218	Inc.. 8,595	8.9
Canada Southern	165,431	83,060	Inc.. 82,371	99.1
Central Pacific	1,133,000	1,136,263	Dec.. 3,263	0.3
Chicago & Alton	363,719	363,627	Dec.. 9,908	2.7
Chicago, Milwaukee & St. Paul	567,388	502,765	Inc.. 64,623	12.9
Cincinnati, Lafayette & Chicago	30,051	30,274	Dec.. 223	0.7
Denver & Rio Grande	31,306	26,500	Inc.. 4,806	18.1
Hannibal & St. Joseph	163,575	138,779	Inc.. 24,796	17.9
Illinois Central	605,494	595,519	Inc.. 9,975	1.7
Ind., Bloom. & Western	103,513	104,750	Dec.. 1,237	1.2
Int. & Great Northern	97,531	105,599	Dec.. 8,068	7.6
Kansas Pacific	220,097	255,474	Dec.. 35,377	13.1
Michigan Central	583,136	611,311	Dec.. 28,075	4.6
Missouri, Kan. & Texas	245,814	233,095	Inc.. 12,719	5.5
Ohio & Mississippi	314,382	309,908	Inc.. 4,474	1.4
St. Louis, Alt. & Terre Haute, Belleville Line	42,272	49,358	Dec.. 7,086	14.3
St. Louis, Iron Mountain & Southern	299,000	275,910	Inc.. 23,090	8.4
St. Louis, Kan. City & Northern	274,358	243,991	Inc.. 30,367	12.4
Tol., Peoria & Warsaw	102,737	72,805	Inc.. 29,932	41.1

First Week in April:

Missouri, Kan. & Texas	$45,924	$54,546	Dec.. $8,622	15.8
St. Louis, Iron Mountain & Southern	75,700	71,803	Inc.. 3,897	5.3

Week ending March 31:

Great Western	£14,486	£19,688	Dec.. £5,202	26.4

Week ending April 1:

Grand Trunk	£40,000	£43,600	Dec.. £3,600	8.3

Coal Movement.

Coal tonnages are reported as follows for the week ending April 8:

	1876.	1875.	Inc. or Dec.	P. c.
Anthracite	563,503	211,494	Inc. 352,009	166.4
Semi-bituminous, Broad Top and Clearfield	15,990	30,039	Dec. 14,049	46.8
Cumberland	40,786	43,147	Dec. 2,361	5.5
Bituminous, Barclay	7,765	3,628	Inc. 4,137	114.0
Bituminous, Western Pa.	18,203	10,644	Inc. 7,559	71.0

During the month of March 12,877,700 bushels (459,918 tons) of coal were shipped out of the pools in the Monongahela River, being the largest shipments of any month since the completion of the improvement of the river. The coal is bituminous, from the Pittsburgh region.

The Cumberland (Md.) *News* of April 11 says: "The reduction of five cents per ton in coal tolls on the Chesapeake & Ohio Canal, announced in the *News* a week or two ago, was made public yesterday. The new rate is 46 cents for toll and wharfage. When the canal company acquired the wharves at this city the wharfage charge was abolished as a separate item and the tolls and wharfage put at 51 cents—three cents lower than were the two combined in 1874."

California Grain Movement.

Receipts and shipments at San Francisco for the nine months from July 1 to March 31 were:

	1875-76.	1874-75.	Dec.	P. c.
Receipts:				
Flour, ¼ sacks	1,407,879	1,568,892	161,013	10.3
Wheat, sacks	5,762,470	9,099,485	3,337,015	36.7
Shipments:				
Flour, bbls	347,544	390,668	43,124	11.0
Wheat, bush	9,204,914	13,420,474	4,215,560	31.4

Compared with 1873-74, there is still a considerable decrease, amounting to 19 per cent. in wheat receipts. The movement in other grains is comparatively trifling.

Lake Rates.

Charters are reported to have been taken April 10 from Chicago and Buffalo at 3⅛ cents by sail and 4 cents by steam for corn to Buffalo. On the 12th charters were for wheat by sail at 4 cents and 4⅛ cents. On the 13th charters were reported for wheat from Chicago to Port Colborne, Can., at 4⅛ cents per bushel by sail; Chicago to Buffalo, 4¼ cents and 4 cents. From Toledo, corn to Erie, 2⅝ cents; corn to Cleveland, 2¾ cents. From Cleveland, coal to Chicago, 50 cents; to Detroit, 35 cents.

Charters reported in Chicago on the 14th were: Corn by sail to Buffalo, 4 cents; wheat to Port Colborne, 4⅛ cents. Coal rates were quoted from Erie, Cleveland and Sandusky to Chicago at 50 cents; at Buffalo shippers would offer but 35 cents.

Ocean Freights.

Charters were reported last Tuesday for grain by steam to Liverpool at 4d. and 4½d. per bushel, cheese at 25s. and bacon at 20s. per ton. A shipment of grain from Canada by steam is reported at 5d. per bushel; and contracts for bacon from Chicago through by steam to Liverpool *via* either Portland, Boston or Philadelphia at 50 cents per 100 lbs. Flour by sail to London was taken at 2s. per barrel; petroleum by sail at 4s. per barrel; flour by steam to Glasgow, 2s. 6d.; grain, 6¼d.

Railroad Traffic.

The freight traffic of the Utah Central and Southern roads for March was as follows:

	1876.	1875.	Increase.	P. c.
Utah Central, tons	11,146	8,640	2,506	29.0
Utah Southern	6,334	5,257	1,077	20.5
Total	17,480	13,897	3,583	25.8

The principal item on the Central was 6,067 tons coal and coke; on the Southern, 2,125 tons ore and bullion.

Freight Rates to Missouri River Points.

A Chicago dispatch says that the Chicago lines will not abide by the rates adopted at the recent meeting in St. Louis, but will charge the same rates to Kansas City as the St. Louis lines.

Iowa Pooled Lines.

A Chicago dispatch says that the Chicago & Alton Company, which has hitherto opposed the Iowa pooled lines on the through business from Chicago to Omaha, has agreed to join them to a certain extent and to maintain the rates they may agree upon.

East Bound Freight Rates.

At a meeting of representatives of the pooled lines in Chicago, April 12, the following new rates on fourth-class and grain were agreed on, the rates on the three upper classes remaining as heretofore:

Chicago to	Fourth class per 100 lbs.	Grain per 100 lbs.
New York	40 cents.	35 cents
Boston	45 "	40 "
Philadelphia	35½ "	31 "
Baltimore	34 "	30 "

Flour per barrel is double the grain rate per hundred.

It is said that the meeting was not at all harmonious, and charges of cutting were freely made. It is also said that the Grand Trunk will soon begin to cut rates without mercy, and that a general break and another war of rates is imminent.

A largely-attended meeting to consider the question of east-bound rates was was held in Chicago April 13, and lasted two days: all the through lines but the Grand Trunk being represented. A committee was appointed to revise the scale of distances to Eastern points and made a report, which was adopted. Another committee made a report on classification of freights, proposing many changes: chiefly from the special to the fourth-class. No action was taken as to maintaining uniform rates, and the meeting is said to have developed some sharp differences of opinion.

A meeting was held in New York, April 18, at which there were present representatives of the New York Central, the Erie, the Pennsylvania, the Baltimore & Ohio, the Lake Shore & Michigan Southern, the Michigan Central and the Pennsylvania Company. The object of the meeting was said to be to consider the action of the New York Central in withdrawing from the agreement of March 2 so far as business done in competition with the Grand Trunk is concerned, and also the action of the Lake Shore in withdrawing from the Chicago pool. It was agreed that the east-bound rates should be left to the Western lines, and that existing agreements on west-bound freight and on east-bound live stock and oil should continue in force.

—General Manager Pierce having offered to reinstate Mr. A. A. Talmage as General Superintendent of the Atlantic & Pacific road, Mr. Talmage has declined, on the ground that in its present financial condition the road cannot pay him the salary he desires. In concluding the letter he says, after speaking of his work on the road: "The unfriendliness that I have met with has been from those who had their own selfish schemes to promote in the operation of the road, without regard to the just claims of its owners. My summary dismissal from the position that I have held, is, I will venture to say, without a parallel in the gross injustice done me and in the bad faith which followed it in refusing me the promised reparation. The only explanation that has been given for my removal is that my letter of resignation was not immediate but was to take effect two days from its date (which was March 16). It was upon this frivolous pretext that my disgrace was attempted."

RAILROAD GAZETTE

Published Every Saturday.

CONDUCTED BY

S. WRIGHT DUNNING AND M. N. FORNEY.

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Editorial Announcements.

Passes.—*All persons connected with this paper are forbidden to ask for passes under any circumstances, and we will be thankful to have any act of the kind reported to this office.*

Addresses.—*Business letters should be addressed and drafts made payable to* THE RAILROAD GAZETTE. *Communications for the attention of the Editors should be addressed* EDITOR RAILROAD GAZETTE.

Advertisements.—*We wish it distinctly understood that we will entertain no proposition to publish anything in this journal for pay,* EXCEPT IN THE ADVERTISING COLUMNS. *We give in our editorial columns* OUR OWN *opinions, and those only, and in our news columns present only such matter as we consider interesting and important to our readers. Those who wish to recommend their inventions, machinery, supplies, financial schemes, etc., to our readers can do so fully in our advertising columns, but it is useless to ask us to recommend them editorially, either for money or in consideration of advertising patronage.*

Contributions.—*Subscribers and others will materially assist us in making our news accurate and complete if they will send us early information of events which take place under their observation, such as changes in railroad officers, organizations and changes of companies, the letting, progress and completion of contracts for new works or important improvements of old ones, experiments in the construction of roads and machinery and in their management, particulars as to the business of railroads, and suggestions as to its improvement. Discussions of subjects pertaining to* ALL DEPARTMENTS *of railroad business by men practically acquainted with them are especially desired. Officers will oblige us by forwarding early copies of notices of meetings, elections, appointments, and especially annual reports, some notice of all of which will be published.*

SHALL THERE BE A RAILROAD WAR?

Unless the Chicago meeting last week and the New York meeting this week were more successful than those that preceded them, and than they appear to have been, there is reason to fear that the railroad war of last year may be repeated. The trunk lines' arrangement made last fall seemed to be working satisfactorily except for the difficulty in coming to terms with the Grand Trunk; but of late the members of the combination have become distrustful, and at least one of them is charged with breaking its agreement, greatly to the injury of its competitors. The worst feature of the trouble is that it is chiefly concerning east-bound freights. Most of the railroad wars before last year were over west-bound traffic. This is a business not one-third as great as the east-bound in amount, but consisting of more valuable merchandise, very little of which can be diverted to the water route by any difference in rates, that is, it is high-class freight, able to pay the highest rates of carriage, and shippers probably never would complain of high rates on such freight, if the rates were equally high from all the great sea-board markets. But, as we have often shown, the great surplus of car capacity going west—the excess of the supply of transportation over the demand, in that direction, has tended to make the competition for west-bound business unusually fierce; and it is in this business that a "freight war" and "broken rates" were expected yearly; though until recently regular rates were made nearly as high as for east-bound freight. Recently, however, these regular rates have been greatly reduced, as if with the expectation that it would be easier to maintain them. Perhaps it is: agents will not be so tempted to underbid five cents a hundred in order to secure a shipment, when the regular rate is 30 cents as when it was 50; but they still see three-fourths of their cars going west empty, and doubtless still feel that a shipment gained from a rival is pretty much clear gain.

However, except with regard to the difference to be allowed to the Grand Trunk on Boston shipments, there seems to have been recently not much disposition to fight for west-bound traffic. Unfortunately, the trouble is with the much larger business in the other direction. There have been reductions three several times in regular rates on this business since December, though lake navigation is not yet open; and the last reduction brings down the regular charge to a painfully low figure on the low-class freights, which form by far the larger part of the traffic. On grain from Chicago to New York the rate is made 35 cents a hundred—at the rate of 21 cents a bushel for wheat and 19 cents for corn. Fourth-class freights are five cents higher. So far as grain is concerned, probably the railroads cannot get any to carry eastward at a higher rate after navigation opens, but the danger is that rates will be still further reduced, and the season's business, which promises to be reasonably large, be made comparatively valueless. Moreover, if there comes a contest, it will doubtless involve west-bound as well as east-bound freight. Several of the companies are in no condition to go through another war like that of last year. Indeed, only one of the trunk lines west of Pittsburgh and Buffalo—the Pittsburgh, Fort Wayne & Chicago - has made anything like a satisfactory return of late years. The Eastern sections of the trunk lines, with the exception of the Erie, which has special disabilities, have not had much to complain of since the panic; but it is not enough that the Pennsylvania and the New York Central should keep up their dividends for railroad business to be satisfactory; the other railroads need an income too, and ought to be permitted to earn one, if the thing is possible.

Aside from the direct loss to the railroad companies, there is an injury to the community by the competitive contests, the extent of which is not easily estimated. There is hardly anything which has a more damaging effect upon the credit of our railroads abroad; and this bad credit of the railroads costs the community an enormous sum yearly. We count the credit of an American railroad company extremely good when it can borrow in England or Germany at 6 per cent. Most companies pay as much as 7 per cent., and many pay 8 per cent. Now, we do not often see an European railroad bond bearing more than 5 per cent., and many pay but 4½ or even 4 per cent. The lowest interest is on bonds of railroads in investing countries, it is true, where the purchasers have the mortgaged property before their eyes. But many foreign 5 per cent. railroad bonds are sold in Holland, Germany and England, and there are scores of companies in this country which can offer better security in almost every respect *except the great instability of rates.* It is not pleasant to see the New York Central, with net income enough to pay its interest charges four times over, paying 6 and 7 per cent. on the money it borrows, while comparatively weak European roads get all they want readily at 5 per cent., and an English company of similar strength would not think of paying more than 4½. But the English investor may with reason say: "You have a large income, it is true; but no one can say that the prices received for the work which you do may not be so reduced between two days as to leave you absolutely no profit." The result is that irregularities in rates, and the disposition which makes such irregularities possible, add materially to the interest required on the bonds of American railroads—interest paid, if paid at all, by the people who use those railroads.

Nothing affords so much support to the people who would substitute government control for the present management of our railroads as the utter failure of these managements to regulate with anything like uniformity their competitive business. The average man, seeing sugar carried from Boston to Chicago this week at a dollar a barrel and next week at 30 cents, and generally such fluctuations in rates that a business man, having laid in a stock of goods in August at an expense of $2,000 for transportation, may see himself undersold by a competitor who waited till September and then got the same quantity of goods carried for $1,000—the average man, seeing this irrational fluctuation of rates, is very likely to think that railroad companies make such wretched work of the business that government could hardly do worse.

The matter is not an easy one to manage, it is true; but that does not excuse the barbarous resort to war which we often see. Managers do not give it sufficient attention, and are too easily satisfied with temporary measures or even look upon railroad wars and frequent great fluctuations as inseparably connected with competitive through traffic. It is in solving problems like these, where not simply physical and economical difficulties are met, but the stupidity, narrowness and selfishness of powerful railroad magnates must be encountered, that a railroad manager may exercise the greatest skill and do most useful work.

THE MASTER MECHANICS' CONVENTION.

Elsewhere we publish an announcement of the meetings of several engineering associations. From these announcements it will be seen that the convention of the Master Mechanics' Association will be held first, the date being May 16. Like most other associations, the one last referred to has—with somewhat doubtful propriety, we think—selected Philadelphia as the place of holding its meeting this year. It is, however, now too late to discuss the wisdom of the selection, and it only remains to make the meeting and its deliberations as profitable and interesting as possible. To do this, the most immediate and probably the most effective way which members can adopt is to answer the circulars of the committees as promptly and as fully as possible. Probably no class of people know so well how prone human nature is to put off postponable duties to the last moment as editors do, and therefore in urging master mechanics to answer *at once* the circulars we know quite well how difficult it will be to impress upon them the urgency of the duty. Perhaps a quotation of dates may help to do this. The convention as already stated will be held on the 16th of May. What we are writing will probably be read by most of our readers about the 24th of April. Now supposing the reader sets about preparing his answers at once, and that it takes him three days to do it, counting delays, the intervention of other duties, etc., it will bring us to April 27. Then allow three more days for the replies to reach the hands of the committees, and the whole of this month is consumed. There would then remain a week for the committees to finish their reports, and another week to put them in the hands of the Secretary to have copies made and arrange them for the meeting. This gives barely enough time to the committees and to the Secretary, so that if members fulfill their duties and do their share of the work of the Association, they must do it at once.

There seems to be a very general feeling prevalent this year that the interest in the meeting of the Association will be overshadowed by that of the Centennial, and that it will be difficult to concentrate the attention of members on the proceedings or even to secure a full attendance at the meetings. Undoubtedly there is some ground for such anticipation, but at the same time an exhibition such as the Centennial is expected to be ought to afford matter for discussion of even greater interest than the subjects which are ordinarily brought up. Although the display of railroad machinery, material and equipment may, as is feared, not be fairly representative of the condition and development of that branch of engineering, yet it will undoubtedly present a vast number of objects of very great interest, about which there could be a great deal of extremely interesting discussion, if such topics could be fairly presented or brought before the Association. Although the manner of conducting the proceedings heretofore does not afford any suitable opportunities for bringing forward such topics, yet it would be very easy to set apart a portion or the time each day for receiving written inquiries and for discussing them. Such a plan has been adopted in some kindred associations, with marked success. It is very simple, and in order to try it all that is needed is to pass a resolution fixing a certain hour when such inquiries should become the special order of the day. This would give an opportunity to any member to bring before the meetings any object which he may have seen in the Centennial, or any subject which may be suggested by the exhibition. What is seen there will be new and fresh in the minds of those who visit it, and therefore discussion will be likely to have a keen interest to all the visitors. Besides this, visitors to an immense exhibition, such as the Centennial is quite sure to be, will find great difficulty in knowing what is most worth looking at. Those who go there with the intention of seeing *all* will probably be objects of sympathy before they get through. Now, if the suggestion we have made should be carried out, it will lead those who visit the exhibition to call the attention of members to objects which are of special interest or worthy of careful examination, which they would be quite sure to receive if their peculiarities had been a subject of discussion previously. Of course the method proposed might be used as a means of securing gratuitous advertising by exhibitors, but the Association would hold in its own hands the means of strangling such attempts, so that there is little cause for apprehension from that source. This plan would be introducing a new feature into the Association, and one appropriate to the time and place. In all societies like the Master Mechanics' there is danger that the proceedings will be lacking in interest, owing to a want of variety in the subjects discussed and the matters taken up for consideration. A debate each year over the mileage of locomotive tires for each sixteenth of an inch wear grows monotonous in five or ten years, and if reports become simply an enumeration of the opinions of persons who answer circulars, they are wanting in that sort of human interest which is given to almost any subject, when a person has earnestly thought about it and given the results of his thinking. It therefore becomes desirable each year to introduce new topics, or new ways of looking at old ones, so as to make the deliberations fresh and thus excite an interest which without some kind of food or stimulant will be sure to languish.

It is well, too, in some cases to keep clearly in mind what the most important objects of an association are, because it is so difficult to keep the work of such a body directed constantly to the purposes of its own organization. Now the Master Mechanics' Association is intended to aid its members in the performance of their

daily duties, which are the direction of the expenditure of the money required to furnish motive power on railroads. The cost for motive power may be roughly stated at one-fifth of the total cost of operating railroads. The kind of information which will aid the members of the Association to diminish this expenditure is the kind of knowledge which should be the most sought, and to which the efforts of the Association should be directed most assiduously. It is not an association for the advancement of abstract science, excepting so far as that science can be turned to practical account. Its success will be measured by what it does to reduce the cost of locomotive service, to which end the proceedings should be exclusively directed.

The St. Louis, Iron Mountain & Southern Railway.

This railroad is the chief line from St. Louis southward. It is, indeed, the only railroad occupying the territory south of St. Louis and the Atlantic and Pacific road from the Mississippi on the east to the Indian Territory on the west. An immense tract of country, including southeastern Missouri, all Arkansas and Eastern Texas, has no other direct rail connection to the North; while it is a chief, probably *the* chief, rail connection between St. Louis and the much more thickly populated part of the South east of the Mississippi and south of Kentucky. Moreover the road is in position to serve as a St. Louis outlet to most of the new lines that may be constructed in Arkansas, West Louisiana and East Texas. Few railroads command so large a territory. Briefly described, it is a line extending from St. Louis south by east 200 miles to the Mississippi at Belmont (where connection is made with the Southern railroad system east of the Mississippi), and a much longer line intersecting the above from the Mississippi, opposite Cairo, southwest 400 miles across the southeastern corner of Missouri and diagonally across the whole State of Arkansas to a connection with the Texas railroads, near the northeast corner of Texas. Thus it is in position to deliver northbound traffic either at Cairo or St. Louis, though it is for its interest usually to carry to St. Louis.

The old "Iron Mountain road" extended from St. Louis southward to the iron-ore districts about Iron Mountain and Pilot Knob, and was less than 90 miles long. Iron ore was almost its only important traffic, the country on its line not being attractive for farming purposes. But the ore is of itself sufficient to support a railroad to St. Louis, when iron manufactures are at all active about that city.

There is no other outlet for the iron ore, and no coal near at hand to smelt it at the mine. Attempts have been made to construct a railroad from the iron district east to the Mississippi, which would only be 40 or 50 miles long, and have a terminus near Illinois coal fields, but so far this project has not been carried out, and the Iron Mountain road remains the only outlet for Iron Mountain ore.

The first step towards enlarging the field of operations of this road was the construction of the extension to the Mississippi at Belmont, so as to connect with the whole system of Southern railroads. St. Louis had no bridge then, and to reach southeastern points it had been necessary to cross two great rivers, causing material delay and expense. The Iron Mountain road was of 5 ft. 6 in. gauge, and all other roads terminating in St. Louis were of the standard 4 ft. 8½ in. gauge. It was doubtless a wise stroke of policy which changed the gauge, not to agree with that of its northern connections, but to conform to the standard of the South, the 5-feet gauge. When this was done and a car ferry established across the Mississippi from Belmont to Columbus, loaded freight cars could be carried through between St. Louis, New Orleans, Mobile, Savannah, Charleston, Wilmington and Richmond, *but only by way of the Iron Mountain road.* The result was very favorable. This road at once established a large traffic between St. Louis and the South, and "Green Line" cars carried St. Louis produce into every cotton State east of the Mississippi. The advantage was greater then than now, when there is a short line between East St. Louis and Cairo east of the Mississippi, a bridge over the Mississippi at St. Louis, and a car ferry and car hoist for transferring car bodies from trucks of one gauge to those of another at Cairo. Then the Iron Mountain road was in position to command most of the traffic from St. Louis southward that could be diverted from the rivers, and its enterprise in completing its connection with the Southern roads was rewarded.

The next enterprise was the construction of the Cairo & Fulton Railroad, a line chartered and endowed with a land grant long before the war, which was to form a sort of extension of the Illinois Central from the Mississippi opposite Cairo southeast entirely across Arkansas to the Texas border, but which, somehow, had never been able to get itself built. Looking at the map, this seems one of the most promising of projects. It is almost without competition except through a narrow zone in Central Arkansas, and it seems nearly equally well as an outlet for Texas and Arkansas products going east or north—to Baltimore, New York and Boston, or to St. Louis, Chicago and Cincinnati. It points towards the great pastures of the nation in Texas and forms a link in the shortest possible line between these pastures and the great beef-consuming cities of the East. Its land grant was large, much of the land was very fertile, and most in an attractive climate—a mean between that of the Northern and that of the Gulf States. The road was built when the railroad fever was at its height, and was finished about the time of the great collapse, when business became prostrate and new enterprises were generally hopeless.

This road, doubtless, is not now so good a property as it looks to be. It has an immense territory to itself, it is true, but that territory is thinly peopled, and for many years has grown very slowly, and its export productions are chiefly very light. In any ordinary country, the line would have had a large local traffic at once; enough, doubtless, to earn a good income on the investment. There seemed a good prospect for a heavy through traffic, and the prospect remains good; but it has not yet become a very large reality. Texas is not only a great and fertile but a growing State—the one part of the South that does grow rapidly. Moreover, it is not a cotton State solely. Cotton yields a large value per acre, but a very light weight compared with most other products of the soil. But Texas is the greatest cattle State, and its animals are for the most part slaughtered and consumed in the Northeastern States—as far east at Cleveland and Pittsburgh. Texas, or part of it, is also a fair grain-growing State. Hence there seems to be in Texas a capacity for producing traffic which is in some degree comparable to that of the Northwest—at least a very much greater capacity than that of any other part of the South.

The Iron Mountain road, however, does not have a monopoly of the through traffic of this great State. This takes several directions. Part of it seeks Texas ports on the Gulf, chiefly Galveston, and finds its way by sea either to Eastern or foreign markets; part from northern and northeastern Texas goes down the Red River and thence reaches markets either up or down the Mississippi; and there is a second rail route, which, like the Iron Mountain road, affords a direct connection with St. Louis and the country further east and north. Still, all Texas now has but two rail outlets to the North and East, and it is hardly possible to believe that within a few years its shipments will not afford a large traffic to both these lines, if meanwhile no new competitors are established. That the traffic is not yet very great is shown by the report for 1875, by which it appears that one passenger train and two freight trains each way every week day over the "Arkansas Division" were sufficient to carry the traffic, local and through. If high rates could be got, these trains might make great earnings, as do the few Union Pacific trains. But very little of the through traffic will go by rail if the rates are high. The cotton would seek the coast or go down Red River; the cattle be driven to Kansas, to be shipped there. On all freight the average receipt per ton per mile was 2.2 cents in 1875, which for a frontier railroad like this, with no competitors for its local traffic, is a low rate.

The net earnings of the road in 1875 were at the rate of $2,616 per mile. The total interest charge, calculating the premium on gold at one-seventh, is at the rate of $2,843 per mile, the debt being a large one for a new road—including funded coupons, about $38,000 per mile, most of it in gold. Early in 1875 an arrangement was made with the bondholders by which three coupons on all the issues except the $4,000,000 first mortgage on the old St. Louis & Iron Mountain Railroad, were funded, and four coupons on the outstanding consolidated mortgage bonds. Under this arrangement only about $800,000 in currency has to be paid for interest in 1876, which is a million dollars less than last year's net earnings: but after this year the coupons will have to be paid regularly, and in 1879 the payment of the funded coupons is to begin. The net earnings in 1875 were not equal to the interest accruing that year, but an increase of less than 9 per cent. in net earnings would make them sufficient. The gross earnings for the first quarter of this year were nearly 16 per cent. greater than last year; which indicates that the company will be able to resume payment of all coupons next year in accordance with the arrangement, and probably to reduce or entirely clear off the floating debt of $1,400,000 due at the beginning of this year. Unless new lines should be built to divert part of its traffic, of which there is no present prospect, the business and earnings of this road must grow. Aside from the through traffic, from which much may reasonably be expected, there is one very large local traffic—iron ore—formerly the chief support of the road, which is capable of very great expansion, with the iron industry simply in its normal condition. The business is of a nature to be economically conducted, being nearly equal in bulk in both directions, and it is quite various in nature, so that the failure of a single crop or the depression of a single industry will not have a fatal effect on business. The extension has given the line not only a cotton and a cattle traffic from Arkansas and Texas, but a considerable grain traffic. It has also a lumber traffic from pine forests on its line; and these with the mineral traffic and the ordinary miscellaneous business give it an unusual variety of resources. It is quite probable that the anticipations of the original promoters of the road may in time be fully met, if not quite so early as they hoped.

"Plain Speech" on Iowa Railroad Legislation.

We publish elsewhere a letter signed "Plain Speech," in which the letter on Iowa railroad legislation which we recently copied from the Chicago *Inter-Ocean*, and our comments thereon, are criticised. We of course have no means of knowing how well founded were the statements in the letter to the *Inter-Ocean*. We published it mainly as an interesting exposition of the spirit in which railroad legislation is conducted in States where everybody uses the railroads and scarcely anybody has a proprietary interest in them. But we must say that our correspondent presents nothing to justify the legislation of his State. As he says, half the railroad companies there are bankrupt, and very few earn any dividends—fewer, we may say, than pay them; for the dividends of some of the Iowa roads are paid chiefly from the earnings of railroads out of Iowa. His statement of discriminations proves absolutely nothing. It is hardly probable that the companies accept the lower rate for the costlier service because they desire to; it is because they can't get any more for this business, and these rates yield, or the companies think they yield, some margin for profit beyond what could be made if the business were refused entirely. It is certainly better for Iowa that Illinois and Nebraska should pay the Rock Island Company part of the interest on its investment in Iowa rather than that Iowa shoul have to pay the whole. The only possible way to prevent these discriminations is by a combination of all the carriers, but it is one of the complaints of our correspondent that three of the Iowa roads have made such a combination while the State has made a law against it. No combination, it is true, could prevent some discriminations and those large ones on a considerable business, without refusing that business altogether. As we have tried to show time and again, it is for the common interest of the railroads and their customers that the former should accept any traffic that will yield the slightest margin of profit *if it cannot otherwise get that traffic.* If one of the railroads from Chicago to Nebraska should exact a rate on Nebraska grain high enough to pay the average rate of profit necessary to yield interest on the capital invested in the road, it would not pay to raise grain so far west; but if half or a quarter or a tenth of the average profit can be made on Nebraska traffic, it will at least yield something towards paying the interest on the investment, and (which is the important thing for the community) *leave less to be paid by the rest of the traffic.* Of course the acceptance of less than the average rate of profit on some traffic involves the exaction of more than the average rate of profit on some other traffic. Certainly discriminations may be and doubtless often are unjust; but no possible degree of difference in rates is of itself proof that the discrimination is unjust.

Our correspondent says that freight rates on the first English railroad were limited to one cent per ton per mile, and that the proprietors all got rich. The fact is that the limitation in the charter of the Stockton & Darlington Railway was not upon all freight, but on coal alone; that this restriction was made at the instance of rival shipping ports and coal-owners for the purpose of preventing shipments and not of protecting shippers; and, moreover, that the restriction was not to a half-penny per ton per mile for *carrying* coal, but for *tolls* over the road; it being expected that the railroad company would furnish only the road, while the shipper or a third party would supply cars, load and unload, and conduct the transportation. As expenses stand now this would be equivalent to nearly three cents per ton per mile.

A strange but not uncommon confusion of ideas appears in the charge that railroad managers grow rich while railroad proprietors are ruined as a justification for laws whose effect is not to prevent peculation by managers, but to lessen or destroy the profits of proprietors. If railroad managers cheat their employers in Iowa, it seems to us very hard that this should justify the people in cheating them too. Certainly the proprietors have not willingly been robbed; and if they have suffered by the acts of their managers, the proper thing for Iowa legislators is to provide means to prevent such corrupt practices, in which they will be heartily supported by all railroad proprietors. "Plain Speech" seems to argue that one is justified in forcing his neighbor to work for lower wages because that neighbor's attorney has stolen his property.

The Railroads of the World.

Dr. G. Stuermer, of Bromberg, Prussia, has for some years collected statistics of the length of railroads throughout the world. We summarize below his conclusions for the year 1875, in which we have made corrections for the United States and Canada:

EUROPE.

Country.	Opened in 1875.	Total at close of 1875.
Germany	1,493	17,373
Austria	467	10,792
Great Britain	250	16,699
France	573	13,414
Belgium	62	2,167
Holland	....	1,011
Luxemburg	....	166
Switzerland	283	1,293
Italy	196	4,777
Spain	169	3,502
Portugal	69	641
Denmark	130	783
Sweden	406	2,465
Norway	....	310
Russia in Europe	81	11,525
Turkey in Europe	....	956
Roumania	168	766
Greece	0	7
Total in Europe	4,347	88,745

ASIA.

Russia in Asia	304	623
Asia Minor	47	249
Hindostan	216	6,489
Ceylon	....	82
Java	....	162
Japan	....	36
Total in Asia	567	7,643

NORTH AMERICA.

Canada	*	4,83
United States	1,545	74,183
Mexico	50	377
Total	1,595	79,397

* A large amount was constructed in 1875, but we are not able to say how much.

Dr. Stuermer notes no additions to the mileage of any country in Central or South America, Australasia or Africa, in 1875; but there probably were some railroads constructed in South America during that year. The total mileage of each of these countries is given below:

AFRICA.

Egypt	950
Algiers	333
Tunis	91
Cape Colony	65
Mauritius	66
Total in Africa	1,451

CENTRAL AMERICA AND WEST INDIES.

Honduras	56
Costa Rica	29
Cuba	400
Jamaica	27
Colombia (Panama Railroad)	47
	559

SOUTH AMERICA.	
Venezuela	9
British Guiana	60
Brazil	831
Argentine Republic	987
Uruguay	190
Paraguay	45
Chili	618
Peru	962
Total in South America	3,701

AUSTRALASIA.	
Victoria	563
New South Wales	405
Queensland	263
South Australia	196
West Australia	40
Tasmania	45
New Zealand	238
Tahiti	2
Total	1,752

SUMMARY.

	Opened in 1875.	Total at end of 1875.
Europe	4,347	88,745
Asia	567	7,643
Africa	....	1,451
North America	1,595	79,397
Central America and West Indies	....	557
South America	....	3,701
Australasia	....	1,752
Total	6,509	183,248

Thus it appears that 40⅛ per cent. of the railroad mileage of the world is in the United States, 43½ per cent. in North America, 45¼ per cent. in all America. Europe has 48⅛ per cent., Asia little more than 4 per cent., Africa about ¾ of 1 per cent., Australasia less than 1 per cent. The United States constructed more than any other country in 1875, though less in proportion to its extent than many others, and less in proportion to its population than some.

The Westinghouse Automatic Brake.

Our attention has been called to an error in the calculations contained in the last paragraph of the description of the Westinghouse automatic brake published last week. The error consisted in taking the average time required to put the vacuum brakes "full on" at 8.25 seconds instead of 15.45, the latter being the true average, as will be seen by referring to the table of experiments published at the same time. As this error led to quite serious results in the calculations which were based on it, we reprint the last paragraph of the description entire with the proper corrections. It should have been as follows:

The average time required to put the brakes "full on" was 15.45 seconds with the vacuum apparatus and 1.91 seconds with the automatic air brakes. Now if, as seems probable, the speed of a train is diminished uniformly after the application of the brakes, then if the average time required to bring the brake blocks to bear against the wheels is represented by x seconds, and the average time to fully set the brake is y seconds, and a is the distance the train is moving per second at the time of the application of the brakes, then the formula $\left\{x+\frac{y-x}{2}\right\}\times a =$ the saving in distance if the brakes had been applied instantly. Applying the data deduced by the experiments to the above formula, we find that at a speed of 30 miles per hour a train would run 490.6 feet in the time which is lost in applying the vacuum brake. At speeds of 40, 50 and 60 miles per hour the distance lost is 654.1, 817.6 and 981.1 feet respectively. With the automatic brakes these distances are 62.9, 83.8, 104.8 and 125.8 feet at the same speeds. The difference then would be, that with the automatic air brake a train can be stopped in 427.7 feet shorter distance at a speed of 30 miles per hour, and at speeds of 40, 50 and 60 miles per hour the distance saved is 570.3, 712.8, and 855.3 feet, respectively. These results compare very closely with those of the experiments made on the Toledo, Wabash & Western, and the Chicago & Alton roads in July, 1874, a record of which was published in the *Railroad Gazette* of September 19, 1874. In these experiments with the vacuum brake it took three seconds to take up the slack in the front car, 9¼ seconds on the middle, and 10 on the last car. With the air brake it took less than ¾ of a second on each of the cars. To put the full pressure of the brakes on with the vacuum brake 12, 23¼ and 49¼ seconds were required on the front, middle and rear cars, respectively, and with the air brake 1¼, 2¼ and 2⅝ seconds. At a speed of 35 to 40 miles per hour, the train with the air brake was stopped in a distance 852 feet less than that with the vacuum brake.

The following is a report of the trial stops made on the Toledo, Wabash & Western and the Chicago & Alton roads:

VACUUM BRAKE. Toledo, Wabash & Western Railway, July 15, 1874.	WESTINGHOUSE AUTOMATIC BRAKE Chicago & Alton Railroad, July 22, 1874.
SECOND EXPERIMENT. Level Track.	SECOND EXPERIMENT. Down grade, 24 feet per mile. Brake applied to engine and whole train.
Cars.....10	Cars..... 10
Speed per hour.....35 to 40 miles.	Speed per hour.... 35 miles.
Distance run.....1,365 feet.	Distance run.....513 feet.
Time running same. 36 seconds.	Time running same. 17¼ seconds.
THIRD EXPERIMENT.	THIRD EXPERIMENT. Brake applied to engine and whole train by passenger in 6th car from engine. Engine working steam until train stopped.
Brakemen..... 5	
Cars..... 10	Cars... 10
Speed per hour.... 35 to 40 miles.	Speed per hour.... 35 miles.
Distance run.....975 feet.	Distance run.....592 feet.
Time running same. 30 seconds.	Time running same 17¼ seconds.

It will be seen from the above that in the second experiments the difference in the distance run was 852 feet. In the third experiments the brakes were applied by hand on the trains fitted with the vacuum brake. It was the result of the latter instead of that of the second trials which we should have quoted last week. The second trial, it will be seen, shows even better results with the automatic brake than the above experiments and calculations indicate. This is due partly to the greater speed at which the vacuum brake train was running, and to the fact that the automatic air brake was applied to the driving-wheels of the engine, whereas the vacuum brake was not.

Technical Conventions.

The annual convention of the American Railway Master Mechanics' Association will be held this year in Philadelphia beginning Tuesday, May 16. Arrangements have been made for the accommodation of members at the Hotel Aubrey, which is located in West Philadelphia near the Pennsylvania Railroad depot.

The Master Car Builders' Association will hold its annual meeting in New York, Wednesday, June 14.

The Annual Convention of the American Society of Civil Engineers will be held in Philadelphia, June 13.

Record of New Railroad Construction.

This number of the *Railroad Gazette* has information of the laying of track on new railroads as follows:.

Texas & New Orleans.—Track is laid from Beaumont, Tex., 22 miles west of the Louisiana border, west 10 miles.

Denver & Rio Grande.—Extended from Cucharas, Col., south to Elmer, 38 miles. It is of 3-feet gauge.

This is a total of 48 miles of new railroad, making 356 miles completed in the United States in 1876, against 196 miles reported for the same period in 1875, 324 miles in 1874, and 566 in 1873.

ALABAMA RAILROAD INVESTMENTS have not been, on the whole, fortunate, at least of late years. Not long after the war, the State adopted a plan for the encouragement of railroad construction, the chief feature of which was the offer to guarantee the bonds of railroad companies, bearing 8 per cent. interest, to the amount of $16,000 a mile. This succeeded admirably. Hundreds of miles of new railroad were constructed, including some lines important to the industries of the State. All but one, we believe, failed to earn and pay interest on their debts. The State when called upon to make good its guarantees was, or felt itself to be, as poor as the railroad companies, and also failed to pay. Then, feeling the burden of these accumulated debts too great for it ever to bear, the State proposed, in several cases, a compromise. Instead of its guarantee of 8 per cent. interest on $16,000 per mile of the companies' bonds, it would give State bonds at the rate of $4,000 per mile, bearing 7 per cent. interest. In some cases these terms were accepted, and the railroad companies, which, as they could not possibly earn interest, had had a claim of $1,280 a year against the State for every mile of road, now had paper on which the State promised to pay $280 per year and $4,000 at maturity. But when the interest on this new issue became due, the State found it inconvenient to pay that even, and now a committee of the Legislature has presented a scheme for settling this claim, which consists in giving for the $4,000 of 7 per cent. gold bonds the amount of $2,000 in new 5 per cent. currency bonds. Thus instead of the original $1,280 per year which the State promised to pay, it now asks its creditors to accept $100, the security being the same in both cases, that is, the pledge of the State of Alabama.

THE ST. GOTHARD TUNNEL is having an experience which reminds an American of the Hoosac Tunnel's history. The company constructing it has subsidies from several countries which the tunnel and railroad will connect, granted after an examination and report by agents of the governments in an "international conference" which estimated the cost of the work at $37,000,000. Now the company, having done a vast amount of work, announces that new estimates made in the light of the experience had so far show that the cost will be $57,000,000, and says that it cannot go on with the work unless the subsidies are increased, and asks that they be raised from $17,000,000 to $33,000,000. If this is not done, since the company cannot finish the work, the tunnel would fall into the hands of the bondholders, and the stockholders would lose their investment, on which they have so far paid in 60 per cent. The company argues that this would be a great injustice, for the reason that the estimate on which the work was originally based was made by the government agents, and the consequences of their error should not fall upon the stockholders. Nothing has been done as yet, and an indefinite suspension of work on the tunnel seems probable.

LAKE NAVIGATION will probably be open in a few days. At the beginning of this week propellers sailed from Chicago and Milwaukee for the lower lakes, ice in the Straits of Mackinac being reported rotten and likely soon to break up. A large fleet with cargoes of wheat and corn will go down as soon as the Straits open, most of the vessels getting 4 to 4⅛ cents a bushel for wheat from Chicago to Buffalo, and hoping for back cargoes of anthracite coal at 50 cents a ton, though coal shippers offer but 35 cents now.

THE FRANKLIN INSTITUTE, one of the oldest and most respectable of American scientific societies, announces that it will extend the free use of its library and reading-room in Philadelphia during the Exposition to members of kindred societies visiting the city, and will also have an office and reception room in Machinery Hall, where visitors will be welcomed and afforded facilities for correspondence, and given information, and where files of technical journals will be kept.

THE MASTER CAR BUILDERS' ASSOCIATION will hold its April meeting on the evening of Thursday, the 27th, at 7 o'clock, at its rooms, No. 113 Liberty street, at which arrangements for the annual convention next June will be considered. A working model of a new train brake, with engine, tender and three cars, will be exhibited. A full attendance is requested, as this is the last monthly meeting before the convention.

General Railroad News.

ELECTIONS AND APPOINTMENTS.

Columbus & Toledo.—At the annual election in Columbus, O., April 12, the following directors were chosen: M. M. Greene, Wm. G. Deshler, D. S. Gray, E. L. Hinman, John W. Greenleaf, P. W. Huntington, Isaac Eberly, Columbus, O.; J. D. Van Deman, Delaware, O.; A. H. Kling, Marion, O.; M. M. Carey, Carey, O.; Samuel M. Young, Abner L. Backus, H. S. Walbridge, Toledo, O. The board re-elected M. M. Greene, President; James A. Wilcox, Secretary and Treasurer.

Columbus & Hocking Valley.—At the annual meeting in Columbus, O., April 11, the old board was re-elected, as follows: M. M. Greene, Wm. G. Deshler, Henry C. Noble, B. S. Brown, P. W. Huntington, W. B. Brooks, Isaac Eberly, C. P. L. Butler, H. W. Jaeger, John L. Gill, Columbus, O.; John D. Martin, Lancaster, O.; C. H. Rippey, Logan, O.; S. W. Pickering, Athens, O. The board re-elected M. M. Greene, President; J. J. Janney, Secretary and Treasurer; G. R. Carr, Superintendent: T. J. Janney, Auditor; W. A. Mills, General Freight and Ticket Agent.

East Berlin Branch.—This company has been organized with the following officers: President, A. W. Eichelberger, directors; Wm. Grumbine, Joseph Dellone, Peter Flickinger, Stephen Keefer, Robert M. Wirt, Hanover, Pa.; Samuel Meissenhalter, Jacob Resser, A. W. Storm, East Berlin, Pa.; Wm. Bittinger, Abbottstown, Pa.; Secretary, A. W. Storm; Treasurer, Jacob Resser.

Long Island.—Mr. A. B. Fiske, Superintendent; Mr. Mark Breer, Master Mechanic, and Mr. H. C. Moore, General Roadmaster of the Flushing, North Shore & Central, are appointed to the same positions on the Long Island Railroad also.

Ponchartrain.—Mr. Daniel B. Robinson has been appointed Receiver on application of some of the stockholders.

North Brookfield Branch.—At the annual meeting in North Brookfield, Mass, April 10, the following directors were chosen: Charles Adams, Jr., Alden Batchellor, T. C. Bates, Bonum Nye, Warren Tyler, Freeman Walker, North Brookfield; Alden Batchellor, Boston. The board re-elected Bonum Nye President; Alden Batchellor, Vice-President; T. C. Bates, Secretary; Charles Adams, Jr., Treasurer.

Attleboro Branch.—At the annual meeting in North Attleboro, Mass., April 13, the following directors were chosen: H. F. Burrows, H. N. Daggett, Stephen Richardson, J. R. Bronson, North Attleboro; A. A. Folsom, Boston. The board elected H. F. Burrows President; J. R. Bronson, Clerk; H. N. Daggett, Treasurer. The road is controlled by the Boston & Providence Company.

St. Louis, Lawrence & Western.—At the annual meeting in Lawrence, Kan., April 10, the following directors were chosen: J. Blood, H. W. Chester, John P. Devereux, Joel Grover, Washington Hadley, J. C. Learned, T. L. Marshall, D. C. Norton, J. C. Rankin, G. H. Rea, J. P. Usher. The board elected J. P. Usher President; J. C. Learned, Vice-President; D. C. Norton, Secretary; John C. Rankin, Treasurer.

Lime Rock.—The first board of directors of this new company is as follows: Josiah H. Applegate, George W. Kidd, David McKay, S. N. Putnam, John Sedgwick. The office is in Santa Cruz, Cal.

Chicago, Burlington & Quincy.—Mr. C. M. Higginson has been appointed Purchasing Agent, in place of C. B. Sibley. He was formerly in the Locomotive Department.

Brazil & Bainbridge.—This new company has been organized at Brazil, Ind., by the election of the following directors: Thomas Watson, R. M. Wingate, John McDowell, J. G. Aclemine, J. G. Niblack, J. G. Bryson, E. C. Garlick, Major Collins, C. S. Andrews, Geo. M. Davis, John Andrew, Jeff. Wilson and N. W. Ades. The directors elected John McDowell, President; J. G. Niblack, Vice-President: G. M. Davis, Treasurer; C. S. Andrews, Secretary.

Shenandoah Valley.—At the annual meeting in Front Royal, Va., April 11, Mr. Wm. McInnes was chosen President and N. L. Boyce, Vice-President.

Marquette, Houghton & Ontonagon.—Mr. W. C. Rogers is appointed Assistant General Freight Agent.

Atlantic & Pacific.—The new receivers have continued Mr. Andrew Pierce, President of the company, as General Manager. Mr. Samuel Hays is appointed Assistant General Manager. It is understood that Mr. Hays is to have large discretion in the management of the property during the absence of the General Manager. C. W. Rogers, recently appointed General Superintendent, is continued in that position. J. N. Litton is appointed Attorney; James Hanna, late Assistant Auditor, becomes Auditor, and F. F. Randolph, Cashier.

Pacific, of Missouri.—The new receivers have confirmed the temporary appointment of Mr. D. R. Garrison as General Manager. Mr. E. A. Ford is continued as General Passenger Agent, and Mr. C. W. Mead is appointed General Superintendent. Mr. Mead was lately General Manager of the Northern Pacific, and was at one time General Superintendent of the Hannibal & St. Joseph.

Baltimore & Ohio.—Mr. Decatur H. Miller, of Baltimore, has been chosen a director in place of C. Oliver O'Donnell, who has resigned on account of a probable prolonged absence in Europe.

American Steamship Co.—At the annual meeting in Philadelphia recently H. D. Walsh was chosen President, with the following directors: Josiah Bacon, B. H. Bartol, J. P. Wetherill, M. Baird, D. B. Cummins, N. P. Shortridge, Strickland Kneass, George B. Roberts, Wm. D. Winsor, George N. Allen.

Green Bay & Minnesota.—At the annual meeting in Green Bay, Wis., April, 3, the following directors were chosen: D. M. Kelly, W. J. Abrams, George Somers, F. S. Ellis, M. D. Peak, W. E. Peak, Green Bay, Wis.; Henry Ketchum, New London, Wis.; E. F. Hatfield, Jr., Wm. W. Scranton, New York. The board elected Henry Ketchum President; D. M. Kelly Vice-President and General Manager; W. J. Abrams, Secretary; W. S. Hancock, Treasurer; S. P. Kenrick, Superintendent.

PERSONAL.

—Mr. Webster Snyder has resigned the position of General Manager of the Long Island Railroad, which he has held but a short time. The resignation is the result of the recent change in the control and management of the road.

—Congress having refused to grant the necessary permission, Gen. Godfrey Weitzel will be unable to accept the position offered him as one of the Cincinnati Southern trustees, unless he should decide to resign his position in the United States Engineer Corps, which is not probable.

—Mr. Walter Katte has been removed from the position of City Engineer of St. Louis by the Mayor of that city. Mr. Katte has made a most excellent reputation for himself by his able and faithful performance of the duties of his office, and his removal has caused a very general expression of regret and much condemnation of the Mayor's action.

—The employees of the Missouri and Sedalia divisions, Missouri, Kansas & Texas road, gave a complimentary banquet at Sedalia, Mo., April 12, to Mr. J. J. Frey, the retiring Division Superintendent, and at the same time presented him with a valuable silver service.

—Mr. Phineas Richardson, an old railroad contractor, died at his residence in Watertown, N. Y., April 14, aged 69 years. He had had contracts on the Black River Canal, the Utica & Black River and several other roads in New York and Canada, his last work being the grading of 25 miles of the Lake Ontario Division of the Rome, Watertown & Ogdensburg road.

—Maj. W. F. Downs, Superintendent of the Central Branch, Union Pacific, has been elected Mayor of the city of Atchison, Kan.

OLD AND NEW ROADS.

Southern Minnesota.

The damage done to the track and bridges by the recent floods is estimated at $30,000. It is urged very strongly that to preserve the road from constant trouble it will be necessary to raise the road-bed for some 20 miles through the Root River Valley to a level that will be above that of any ordinary flood. This will be an expensive work but, it is claimed, will be cheaper in the end than to rebuild the road every spring, as is now necessary.

St. Louis & Southeastern.

It is said that some of the holders of Evansville, Henderson & Nashville bonds desire to secure a separate foreclosure under that mortgage, but it is claimed that a majority are opposed to such a proceeding. The former party have been trying to secure bondholders' signatures to an agreement for foreclosure, but have not, it is said, been very successful.

Illinois Central.

The London *Railway News* of April 8 says:

"No better evidence could be afforded of the readiness with which English capitalists would subscribe to railways in America, if only satisfied that they would be fairly and honestly managed, and with a due regard to the interests of those who provide the capital in this country, than the reception accorded to an issue of £200,000 five per cent. sterling mortgage bonds of the Illinois Central Railroad, announced during the week by Messrs. Morton, Rose & Co. The whole amount was at once more than subscribed, the price of issue being 96 per cent. The confidence shown by investors, and evidenced in the comparatively high price of the bonds, would appear to be amply justified by the position of the property. The report for the past year, full details of which were given in these columns last week, shows a revenue balance of $3,089,000, of which the interest on the bonded debt absorbed $661,000, leaving available for the share capital no less than $2,319,000, with a balance of $109,000 to be carried forward. The margin of security on the bonded debt is thus exceptionally large for an American railroad, which gives the bonds of the company a position closely approximating to that of the preference charges of a home railway. The issue of bonds referred to is made for the purpose of providing additional rolling-stock and steel rails. The bonds are included in and form part of the consolidated mortgage of $15,000,000, under which, including the present amount, $11,000,000 has been raised.

This company has resolved to conform with the Iowa railroad law and has revised the tariffs of its Iowa Division in accordance with the law. In order to meet the reduction in rates orders have been given to work the road with the utmost possible economy and to avoid all expenditures for improvements and additions. It is said that the building of the proposed shops at Fort Dodge is to be given up or at any rate postponed, in accordance with this policy.

Local papers assert that economy is carried so far that no fires or lights are allowed in the depots, which seems hardly probable.

Rahway.

It is said that arrangements have been made to build this road and that a contract will be let very soon. The road will be about three miles long, from Rahway, N. J., northeast to a connection with the Long Branch line of the New Jersey Central near Morse's Mill. It will be worked as a branch of that road.

Grand Southern.

The contract for the construction of this narrow-gauge road from St. John, N. B., west to St. Stephen, has finally been signed and the necessary bonds filed by the contractors. Work is to be begun by June 15.

Central Pacific.

A plan very similar to that proposed by the Union Pacific has been presented by Mr. C. P. Huntington for this company, and will probably be presented to Congress. The proposition is to establish a sinking fund into which shall be paid all sums now due the company from the Government; all money which has been already received by the company for lands already sold, in excess of $2.50 per acre and the cost of survey; all the land-grant yet unsold to be credited at $2.50 per acre, and finally such semi-annual payments as will be sufficient to make the fund equal the amount of the bonds and interest at maturity.

Pennsylvania & Sodus Bay.

The Union Trust Company, trustee, has recently obtained a decree of foreclosure against this company in the New York Supreme Court. The road was intended to run from Sodus Bay southward to the Pennsylvania line, and a good deal of grading was done on it in 1872 and 1873, but no track was ever laid.

Memphis & Knoxville.

A proposal has been made to change the line of this projected road, abandoning the northern route by way of Clifton and following a line near the Mississippi State line. The southern route is said to be much cheaper to build, but it is also near and parallel to the Memphis & Charleston road.

The Tennessee Circuit Court has recently decided that the Pulaski subscription of $50,000 to the stock is void for the reason that the company was not legally chartered and had not complied with the statute governing such cases. The case is to be appealed to the Supreme Court.

Union Pacific.

A bill has been introduced in Congress to provide a plan for the eventual settlement of the debt due to the Government by this company. It provides that the company shall sell all its lands west of the 100th meridian to the Government at the fixed price of $2.50 per acre. To the sum thus produced, which shall be set apart as a sinking fund, the company shall add $1,000,000 in cash and such further sums, to be paid from time to time, as shall produce at the maturity of the bonds a sum sufficient to pay the entire amount of principal and interest which will then be due. President Dillon has signified the company's willingness to accept this plan of settlement.

Meetings.

The following companies will hold their annual meetings at the times and places given:

Pittsburgh, Fort Wayne & Chicago, at the office, No. 175 Wood street, Pittsburgh, Pa., May 17, at noon.

Jeffersonville, Madison & Indianapolis, in Jeffersonville, Ind., May 15.

Tyrone & Clearfield, at No. 233 South Fourth street, Philadelphia, May 1, at 11 a. m.

Chartiers, at No. 233 South Fourth street, Philadelphia, May 1, at noon.

Shamokin Valley & Pottsville, in Philadelphia, May 1.

Uniontown & West Virginia, in Philadelphia, May 1.

Flushing, North Shore & Central, at the office, No. 11 Mercer street, New York, May 1, at noon.

New York Elevated.

The New York Supreme Court at general term has approved and confirmed the report of the Commissioners appointed to consider whether this road should be built on the route and according to the plan approved by the former Rapid Transit Commissioners, in spite of the opposition of the property owners along the proposed line. The Court holds that the law authorizing the appointment of the commission is constitutional and that its provisions have been complied with.

In a suit brought by a property owner to enjoin the company from putting in a siding on Greenwich street, the court has decided that the laws of 1868, under which the present company acquired possession of the road and the law of 1875 confirming its title and franchises are both unconstitutional. The injunction was granted, but an appeal will doubtless be taken.

Dividends.

Dividends have been declared by the following companies:

Lowell & Lawrence (leased to Boston & Lowell), 3 per cent., semi-annual.

New Bedford (leased to Boston, Clinton & Fitchburg), 4 per cent., semi-annual, payable April 30.

United States Express, $2 per share, payable May 1.

Baltimore & Ohio, 5 per cent., semi-annual, payable May 1.

Poughkeepsie Bridge.

At a meeting held in Poughkeepsie, N. Y., April 17, it was stated that only $100,000 remain to be raised to secure the commencement of work on the bridge. A committee was appointed to try and procure subscriptions to that amount.

Baltimore & Ohio.

At the directors' regular monthly meeting in Baltimore, April 12, it was resolved that the notice of the termination of the agreement under which the Valley Railroad is now worked be accepted, and possession of the line from Harrisonburg to Staunton be given up May 1. It was also resolved to decline the proposal of the Valley Company for a new lease.

It was resolved that appeals be taken from the Circuit Court in the suits to recover the tax of 20 per cent. on the passenger earnings of the Washington Branch. In view of those suits it was decided to declare no dividend on the Washington Branch stock.

The usual dividend of 5 per cent. on the earnings of the half-year ending March was declared and made payable May 1.

New Jersey Railroad Taxation.

The Governor of New Jersey has signed the railroad tax bill, and it is now a law. As heretofore noted, it provides for a tax of one-half of one per cent. annually on the cost of road and equipment, companies to make each year sworn returns of such cost. The United New Jersey Company's lines are exempted from the operation of the law, and will continue to pay an annual tax of $297,000 as provided by the contract made several years ago, when the transit duties were abolished.

Discriminations in Freight Rates.

A number of gentlemen appeared before the Committee on Commerce of the House of Representatives in Washington, April 18, and presented arguments in favor of a general law to prevent discrimination in rates on through lines, and to regulate traffic passing between the States. The present movement has its origin in Pittsburgh, where the manufacturers and merchants have been for some time making much complaint of the high rates which they have to pay on freight bound to or from that city, in comparison with those charged on freight from Western cities to the seaboard.

Chicago, Burlington & Quincy.

A special meeting of the stockholders was held in Chicago, April 14. President Harris explained the proposed amendments to the by-laws, and the meeting then adjourned to the next day, on account of the small attendance.

The leading amendments fix the date of the annual meeting on the Wednesday after the fourth Monday in March of each year, and, as has been already noted, provide that all leases and questions as to extensions shall be referred to the stockholders for action, except that, in cases of emergency and with the written consent of nine directors, such leases or purchases may be made in any one year as will not involve over $150,000 of annual interest or rental. The others are not important, and refer chiefly to minor matters of detail.

Toledo, Wabash & Western.

An informal meeting of stockholders was held in New York, April 13, to consider the position of the company. Mr. O. D. Ashley, Chairman of the Protective Committee, stated that the object of the meeting was to secure, if possible, a full representation of the stockholders at the meeting to be held in Toledo next month. He thought that if this were the case, and the bondholders saw that the stockholders did not evince the apathy which had heretofore characterized them, and were anxious to prevent the sale of the road under the foreclosure, that a satisfactory settlement of the matter could be made with them. There were 140,000 shares of stock, the owners of which had not paid the assessment to the Committee; there were 60,000 in the hands of brokers and bankers held for other parties; and Mr. Ashley urged the propriety of having these shares transferred to the names of the owners, and that payment be made upon them. It was necessary that measures should be taken to protect their interests, and this could not be done without pecuniary means. There were suits pending, and they would probably be followed by others; there was also a suit on the equipment bonds to the amount of $600,000; the holders claim the right to be converted into consolidated bonds, which is denied.

A resolution was adopted providing for the appointment of a committee of ten to confer with the Protective Committee and take such steps as may be advisable to secure a full representation of the stock at the special meeting to be held in Toledo, May 31, and to assist in devising measures to preserve the stockholders' property in the road.

Rochester & State Line.

The Rochester (N. Y.) *Union* of recent date says: "The outstanding or floating debt of this company is being adjusted as rapidly as parties can be reached who are interested. This is, we learn, the only obstacle in the way of an immediate resumption of the work after the exchange is made with the city and towns, in pursuance of the special legislation heretofore obtained. Mr. Smith, the contractor, was in town yesterday, and conferred with the officers of the railway company as to the progress made. We learn that he has now perfected nearly every detail necessary for the vigorous prosecution of the work. Great anxiety is expressed on the part of the towns that the work shall commence at once. Col. Smith has no fear but he will be able to fulfill his part of the contract within the time limited."

Texas Transportation Company.

A company by this name was chartered in 1866 and, besides other privileges, was given the right to build a railroad from a point on Buffalo Bayou below Houston, Tex., to and into that city, there to make connections with the lines entering the city. Mr. Charles Morgan has been for some time engaged in dredging out a channel through which his steamers can pass up Buffalo Bayou to Constitution Bend, instead of stopping at Galveston, and it is now stated that he purchased a controlling interest in the Texas Transportation Company's charter and that under its authority he has begun to build a railroad from his steamer landing at Constitution Bend to Houston. This road will be about eight miles long and will give him a connection with the Houston lines independent of the Galveston, Houston & Henderson road.

Pennsylvania.

Negotiations are in progress with the Central of New Jersey for the use by this company of the Central's bridge over the Raritan River between Perth Amboy and South Amboy. When the necessary connections are made freight trains from the Amboy Division of the Pennsylvania can be run through to Jersey City, passing over the Perth Amboy Branch to Rahway and thence over the main line of the New York Division. This line can be readily used for through freight in case of any overcrowding of the New York Division.

Superintendent McCrea, of the Middle Division (Harrisburg to Altoona) has issued the following order:

"Hereafter freight crews, including engineers and firemen, running between Altoona and Harrisburg, will be known by the number of cabin [caboose car] to which they belong, and will be first run in and first out, as at present. In order to have the men lie over at their homes on Sunday as much as possible, it will be necessary to close each day's work at Harrisburg with through freight west, and at Altoona with Harrisburg freight east, and should there be any crews on either side not sent out up to that time, they will lie over one round trip, and start out on the following trip as the first crews on their own sides. The engines given in the annexed list will be run first in and first out without any regard to side, and the engineer and fireman belonging to the cabin car will run the engine that is marked to go out with it. This arrangement will give train men the largest possible lay-over at each end of the road, give every one an equal chance to make time, and not render it necessary for crews to be laid off, where the engine with which they have been running has been stopped for repairs. For the present there will be no change in the engines or crews that are especially assigned to Huntingdon and Tyrone runs, or with those engaged in local freight service. As by this arrangement engineers and firemen are not especially attached to any particular engine, they will not be required to do any round-house work, unless in special cases, where directed by the Master Mechanic to do so. It will be very necessary for them, however, to be careful to report any work that may be required to an engine immediately upon their arrival at either end of the road."

It is thought that by this arrangement the freight engines can be kept more constantly at work than heretofore and that the number required for the through freight runs can be considerably decreased.

New Orleans, Mobile & Texas.

In New Orleans, April 17, the Louisiana Supreme Court decided the issue of $2,500,000 State bonds to the New Orleans, Mobile & Chattanooga Company, under act No. 95 of 1871, to be invalid and unconstitutional, on the grounds that the constitutional limit of the State debt had been reached when the bonds were issued, that the issue was fraudulent, and that the State received no consideration therefor.

Blanchard Intersection.

Mr. Charles Blanchard, of Philadelphia, who owns this road, has contracted with Mr. Charles H. Sperring, Civil Engineer, of Lock Haven, Pa., to complete this road and lay the track. Mr. Sperring informs us that the road is four miles long and connects at Winterburn, Pa., with the Low Grade Division of the Allegheny Valley road. It is intended for the transportation of coal and lumber, and is built in a good, substantial manner, as it is to be a permanent road. It may be extended southeast to Curwensville to connect there with the Tyrone & Clearfield Branch of the Pennsylvania.

A St. Louis Pool.

A Chicago telegram says that at a meeting held in that city April 15, an agreement was made between the lines leading eastward from St. Louis to pool the gross earnings on all competitive business to and from St. Louis, on the basis of the earnings of the various roads for the years 1873, 1874 and 1875. The roads concerned in the arrangement are the Ohio & Mississippi, Chicago & Alton, Toledo, Wabash & Western, Vandalia Line and Indianapolis & St. Louis. An Executive Board, composed of J. C. McMullin, of the Chicago & Alton; J. E. Simpson, of the Vandalia, and E. Waldron, of the Ohio & Mississippi, was elected, with power to agree upon a tariff to be observed. The new arrangement went into effect April 17. It was proposed to include the Indianapolis lines in the pool, but that part of the plan was postponed for the present, owing to certain difficulties interposed.

Chicago & Illinois Southern.

In the case involving the validity of the bonds issued by Moultrie County, Ill., to this road (formerly the Decatur, Sullivan & Mattoon) the United States Supreme Court has given a decision in favor of the holders, establishing the validity of the bonds.

Portland & Ogdensburg.

Holders of Vermont Division bonds issued jointly by the Lamoille Valley, the Essex County and the Montpelier & St. Johnsbury companies, are requested to communicate with A. W. Hastings, Clerk of Executive Committee, at No. 311 Broadway, New York.

Little Rock & Fort Smith.

The long cut recently completed on this road near Ozark, Ark., was a very heavy piece of work. It is about 1,200 feet long, of which 300 feet is through cutting and the rest on the side hill. The through cut is about 100 feet deep, and the side-hill cut, at the deepest point, 140 feet. It is all in very heavy sandstone, and cost about $85,000.

Valley, of Virginia.

At the recent meeting of the stockholders the board was instructed to terminate the present arrangement under which the 26 miles of completed road from Harrisburg, Va., to Staunton is worked by the Baltimore & Ohio. The board took the necessary steps and then offered to lease the road to the same company for two years at $30,000 a year, which offer was promptly declined. It is possible that trains may cease to run for a time, as the present arrangement terminates May 1.

New York & Oswego Midland.

Two handsome passenger coaches have just been completed at the Oswego shops. The force at the shops has been increased and business all along the road is improving a little. The employes are now paid promptly and regularly each month.

It is reported that some of the large bondholders have recently been buying up considerable amounts of receivers' certificates which have lately been sold at about 40 cents on the dollar. There is a considerable amount of these certificates afloat which were issued in payment of arrears of wages and at one time sold as low as 10 cents.

Searcy, Pine Bluff & Monroe.

The stockholders of this company, which has some 28 miles of graded road-bed between Pine Bluff, Ark., and the Memphis & Little Rock crossing at Lonoke, have offered to transfer the property to a new company, provided they are allowed its value in paid-up stock. The distance from Pine Bluff to Lonoke is 41 miles, leaving 13 miles still to be graded.

Galveston, Brazos & Colorado.

A formal announcement of work on this projected narrow-gauge road was made in Galveston, Tex., April 6, and the first spike driven with some ceremony. No work had been done further than to lay down a few ties and some rails. The company purposes building a bridge over Galveston Bay at the Caronkaway shoals.

Des Arc & Conway.

It is proposed to build a railroad from Conway, Ark., on the Little Rock & Fort Smith road, 30 miles northwest of Little Rock, eastward to Des Arc on White River, a distance of about

60 miles. It would cross the St. Louis, Iron Mountain & Southern about 30 miles from Little Rock. It is claimed that White River is navigable when the Arkansas is not, and that Des Arc would be made the shipping point for the Fort Smith road's cotton and coal; also, that St. Louis freight would save 30 miles of transportation.

New York, West Shore & Chicago.

There is a report that work is to be resumed on this road shortly, which appears to be very improbable, as the company is hopelessly bankrupt.

Gilbert Elevated.

The Sixth Avenue Railroad Company on the 19th inst. applied for an injunction to prevent the construction of this elevated road in Sixth avenue. The chief ground of the application is that the charter contemplated a tubular pneumatic road, which is not what the company now proposes to build.

New York Elevated.

This company is now putting in four new sidings, on what will eventually be sections of second track, and the one at Eleventh street will be made about a mile long. It has also laid the foundations for the extension from the foot of Greenwich street across the Battery to Whitehall street opposite Front street, which is only a few rods from South, Hamilton and the two Staten Island ferries. When the sidings are completed, which will be shortly, the company will be able to run trains throughout the day only nine minutes apart, which will be a very great addition to the accommodation. Many people in the upper part of the city at some distance from the stations would always use this line if they were sure of finding a train a few minutes after reaching the station; but as some of the trains are now 18 minutes apart, what is gained over the omnibus or street car in the time of the trip may easily be lost in waiting for a train. The road finds really great favor already, but does not attract nearly so much custom from the east side of town as it would with shorter intervals between trains.

The injunction issued by Judge Daly prevents, for the present at least, the construction of a siding on Greenwhich street, the chief ground being that this street, where the siding was begun, is the property of the adjacent land owners, the public right extending only to the occupation of a street for ordinary street purposes; but the Judge intimated some flaws in the legislation for this company which might affect it more seriously.

On the contrary, the Supreme Court has confirmed the decision of the Commissioners, granting right of way and establishing a route for a railroad on the east side of town, from Whitehall street, near South Ferry, up Front street, Pearl street and Third avenue, and there would seem to be now no obstacle to the construction of a road on this route; though probably suits for injunctions will be brought whenever work is begun.

Lockport Branch.

The people of Lockport, N. Y., propose to build a railroad from that town northeast to the Lake Ontario Division of the Rome, Watertown & Ogdensburg at Olcott, a distance of 12 miles.

Buchanan & Clifton Forge.

The stockholders of the James River & Kanawha Canal met in Richmond, Va., April 18, and voted to subscribe $400,000 to the stock of this company, whose road is to connect the canal at Buchanan with the Chesapeake & Ohio Railroad at Clifton Forge. It was also resolved to ask the City of Richmond to indorse $250,000 canal bonds to be issued for the subscription; to exchange city bonds for an equal amount of canal bonds, or to subscribe $100,000 to the stock and buy $400,000 of the bonds of the road.

Oil City & Clarion.

It is proposed to build a railroad from Oil City, Pa., southeast some 25 miles to the Clarion County oil fields.

Valley, of Ohio.

At the special meeting held April 12 the stockholders voted unanimously to increase the capital stock to $6,500,000, and to authorize the building of a branch to Canal Dover to connect with the Marietta, Pittsburgh & Cleveland road.

Iowa Northern Central.

There is said to be a prospect for the revival of this project and the completion of the road. The St. Louis, Keokuk & Northwestern Company has offered to iron, equip and operate the road, provided the company can complete the grading and bridging from Keokuk northward to Iowa City.

Burlington & Northwestern.

The work of grading the section from Burlington, Ia., to Winfield has been resumed and contracts for the bridging are to be let soon. Ties are also being contracted for.

Gilman, Clinton & Springfield.

Under the decree of foreclosure of the first mortgage, granted last week, the road will be sold by the master in Springfield, Ill., June 8. The amounts of the bonds and overdue coupons is about $2,300,000. The sale will be made on thirty days' redemption.

Old Orchard Beach.

This company whose road is to be a few miles long, connecting Old Orchard Beach, Me., with the Boston & Maine road, has completed its organization and opened books of subscription. There is talk of making it of 24 inches gauge.

Cleveland, Columbus, Cincinnati & Indianapolis.

The new car shops at Brightwood, near Indianapolis, are now completed and in use. They consist of a main building 300 by 50 feet, with wings 250 by 50 and 171 by 50 feet. There are three smaller buildings, one 85 by 55, one 71 by 170 and one 78 by 170 feet. The buildings for the locomotive repair shops are to be completed by November next, and the foundations are already in. They will include a main building 271 by 90 feet, with wings 131 by 50 feet and 171 by 50 feet, besides a smaller building 70 by 50 feet, and a round-house 241 feet diameter. About 130 men are now at work in the car shops, and the number is to be increased. The shops are said to be well-built, roomy and convenient.

East Line & Red River.

B. H. Epperson, W. M. Harrison and others, of Jefferson, Tex., have offered to build the first section of 20 miles out of Jefferson, provided the charter is turned over to them, and they receive donations amounting to $30,000 cash and $50,000 in land and city property.

European & North American.

Arrangements are being made to put on a night train on this road to run between Bangor and St. John. Pullman cars will be run, and will go through from St. John to Portland and probably to Boston.

The entire issue of second-mortgage bonds of the Bangor & Piscataquis Division was sold at auction in Bangor, April 8, by a savings bank to which they had been pledged as security. The bonds brought $4,000, the par value being $214,000.

Tennessee & Pacific.

The joint committee appointed by the Wilson and Davidson county courts report that the amount claimed by the State and for non-payment of which the road is to be sold is $158,803.50, of which $10,760 is payable in cash and the rest in State bonds. These can be bought at 42, making the actual amount needed 72,988.27, and moreover $9,000 of the State claim is disputed by the company. The company has on hand about $10,850 which can be used. The committee recommends that the counties raise the balance needed and prevent the sale; if this cannot be done then they should buy in the road when it is sold. The latter course will probably be adopted.

Montclair & Greenwood Lake.

This company is now offering for sale to the bondholders a part of the preferred bonds provided for in the reorganization for the purpose of completing and equipping the road. They are offered at 85 and enough of them are to be sold to realize $100,000, which is needed to build the extension to Greenwood Lake. Contracts have already been let for the heavy grading and some of the bonds have been taken. More money is needed, however, and the company is urging the sale of the bonds. An obstacle in the way of this extension is a preferred lien for some $80,000 held by a contractor, who did some heavy grading for the old company, which the new company will probably have to pay for before it can be used.

Rome, Watertown & Ogdensburg.

The railroad bridge over the Oswego River is completed and the connection of the Lake Ontario Division with the older lines of the company is made. The first train passed over the bridge, April 14.

The new bridge is 892½ feet long, with a draw-span 246¼ feet long and five fixed spans. It is built for double track and is of iron, a truss deck bridge with the exception of one span, which passes over the Delaware, Lackawanna & Western track, and is a through truss. The height from the water to the top of the rail is 54 feet. The masonry piers were built by John Hunter & Co., and the superstructure by the Delaware Bridge Company, Charles McDonald, President. Work on the piers was begun in August last.

The bridge is owned by a corporation known as the Oswego Railroad Bridge Company, which is controlled by the Rome, Watertown & Ogdensburg. It is intended chiefly for the use of that company and to connect its older lines with the New Lake Ontario Division, but trains of other railroads will be allowed to use it at fixed rates of toll.

Long Island.

The company has withdrawn all trains from its Flushing Branch and that branch will not be operated hereafter. It was built to compete with the Flushing, North Shore & Central for the travel of Flushing and one or two small villages on the line and, as the two roads are now under one management, its continued operation is superfluous, as one road can accomodate all the business.

Cincinnati Southern.

The Superior Court, in which the power is vested by law, has at last settled the much discussed question of the compensation to be paid to the trustees for their services up to the present time. The amounts allowed are as follows: Miles Greenwood, $18,000; R. M. Bishop, $10,000; Philip Heidelbach, $8,000; Wm. Hooper, $8,000; E. A. Ferguson, $25,000. The three smaller amounts are for partial terms.

The bid of Espy, Heidelbach & Co. for the $3,000,000 new bonds, which was accepted, was 100.13 *in gold*, with accrued interest from May 1. It is understood that they represent a syndicate of bankers in New York, including some of the leading German houses there.

Erie Canal.

The date of the opening of the canal for traffic has been fixed for May 4. It is unusually early, but is warranted by the forwardness of the season. The canal is said to be in unusually good condition.

Chicago, Milwaukee & St. Paul.

It is said that the Iowa & Dakota Division will be extended this year from Algona, Ia., west to Spencer, 55 miles, in order to save the land grant.

Detroit & Milwaukee.

Receiver Trowbridge reports to the Court as follows for March:

Balance on hand March 1		$36,890 78
Freight traffic	$68,287 28	
Passenger traffic	23,229 04	
Mails, express and miscellaneous traffic	3,314 10	
		94,830 42
Rents, sale of old iron, etc		2,383 58
Total receipts		$134,104 78
Car mileage, rents, interest, supplies, etc	$52,164 62	
January pay-rolls	37,674 24	
February pay-rolls	30,107 98	
		98,846 84
Balance, April 1		35,257 94

The disbursements were $1,632.84 in excess of the receipts for the month. The traffic receipts were at the rate of $502 per mile.

Troy & Boston.

This company has contracted for 1,000 tons of Bessemer steel rails, which are to be put on the track during the coming season.

Canada Southern.

The attention of British holders of this company's bonds has been called to an application about to be made to the Dominion Parliament to authorize the issue of preferred shares in payment of first mortgage and other bonds and interest. A petition has been prepared by these British bondholders against this application. The following declarations are made in this petition:

"That when your petitioner bought his interest in the first mortgage of the Canada Southern Railway he did so on the faith of the various representations made by that company, and without any idea that an attempt would be made in the future by said company to alter the position or the rights and privileges of the first-mortgage bondholders.

"That your petitioner has been led to believe that a considerable portion of the first-mortgage bonds have been acquired by the present controlling interest of the stockholders" and he "prays that the Parliament of the Dominion of Canada will not pass any act permitting the Canada Southern Railway Company to alter in any way the position or privileges of their bondholders before the bondholders residing in Great Britain shall have had ample opportunity afforded them of obtaining full information of the provisions of the desired act and its objects, and considering of its merits."

Great Western, of Canada.

Under date of March 29, the Secretary, Mr. Brackstone Baker, announces that the first draft of the income account for the half year ending with January last showed a loss, after paying interest on bonds and debenture stock, amounting to £17,582—which was better than the weekly reports of earnings had indicated

Erie.

A London telegram says that Messrs. Miller and Fleming, the members of the Dundee committee who recently visited this country, have published their report. After reviewing the past history and the present financial condition of the Erie property, they say that the essential conditions of a successful reorganization are: First—An effective control of the management by the real owners—the bondholders. Second—The restoration of the equilibrium between the compulsory interest charge on the mortgage debt and the minimum net earnings. Third—A provision for changing the gauge from 6 feet to the standard 4 feet 8½ inches. The net floating debt is $2,800,000. If part of the net revenue for a sufficient period could be applied to paying off the floating debt and putting a narrow gauge on the line, there could, with capable management, be no question as to the capability of the property to earn interest on all its mortgage debt without the necessity of foreclosure and assessment on the shares. This result could be substantially secured by the plan proposed of funding for five years all the coupons on the second consolidated mortgage bonds and the September coupons on the first consolidated bonds, the March coupons to be paid in cash. The bondholders, however, will not consent to this unless the stockholders will put a majority of the stock in the hands of trustees, receiving negotiable certificates in exchange. The trustees would then exercise the voting power, giving the control of the management to the bondholders. A draft of an agreement embodying these proposals has been prepared, and will soon be submitted to a meeting of the security holders. In view, however, of the difficulty of securing the consent of bondholders and the doubt as to whether the stockholders will co-operate, they think that a foreclosure will be necessary, and that it is the soundest plan. They say that Receiver Jewett has expressed the opinion that a foreclosure is inevitable. They say, in conclusion, "We must content ourselves with suggesting that the committee proceed with vigor in the direction of foreclosure, at the same time inviting the stockholders to signify their willingness to vest their shares in trustees as above mentioned. Whenever enough of them have done so it will be right for us to consult our constituents as to the choice of plan."

Atlantic & Great Western.

There was a meeting of the holders of first and second leased line rental bonds (1872 and 1873) and of the two sets of Western Extension bondholders (6 and 7 per cents.) in London, March 30, at which Sir C. E. Lewis, M. P., presided. The committee reported that Mr. H. W. Blake had been asked to resign his position as Trustee, in accordance with the vote of the bondholders, but had refused. The report detailed the results of the chairman's examination of the company's minute books, which showed that the payment of interest on the bonds issued in February, 1873, had been provided for by the forced sale of other bonds, while the interest on the 1872 bonds was met by the proceeds of another issue. The Chairman expressed no opinion as to the truth of these minutes, but said he felt that further action should be taken, and promised that if the other bondholders agreed with him he would follow the matter out to the end, and if any liability existed in regard to misappropriation of the bonds, the parties answerable for it should suffer. The report was adopted and formal resolutions were passed asking Mr. H. W. Blake to resign his trusteeship and recommending Mr. Westlake as his successor. Similar resolutions were adopted by the 1873 bondholders, who recommended Mr. G. Herring as trustee if Sir John Swinburne should resign.

The meeting of Western Extension bondholders followed. They appointed Messrs. Smith, Harrison, Clarkson, C. E. Lewis, M. P., G. Herring and F. R. Mowatt as a protective committee, were informed that Sir John Swinburne had resigned both the trusts, and that Sir George Balfour and Mr. Blake were then trustees for the 7s, and Mr. Herring for the 8s. The protective committee are to ascertain the legal position of the two trusts, and see whether they can enforce the guarantee, and whether it would be necessary to dissolve the 8 per cent. trust at maturity.

Cleveland, Columbus, Cincinnati & Indianapolis.

The Cleveland *Leader* says: "It will not be long before the most important coal shutes of Cleveland will be those now being built by the Cleveland, Columbus, Cincinnati & Indianapolis Railroad Company, just above the railroad bridge, near Scranton avenue. These shutes will be very extensive, occupying nearly 1,000 feet of river front, and located so that vessels lying at the dock alongside them can be easily loaded, and in one-quarter the time occupied at most of the other coal docks. It is understood that the railroad company intend to dredge in front of these shutes to a sufficient depth to float any vessel on the lakes, and now it only remains for the city to do its part by deepening the river so that they can be reached, thus not only benefiting these shutes directly, but the commerce of the port of Cleveland, and every inch of river front from the mouth of the river up."

Oregon & California.

The Frankfort Protection Committee gives notice that it has declared a dividend of 1.45 per cent. on account of the coupon due April 1 on the 7 per cent. bonds.

Galveston, Harrisburg & San Antonio.

A statement published in London says that the net earnings for the year ending Oct. 31, 1875, were $310,374, and the interest charge on the bonded debt was $203,000. This result is considered very encouraging, with a poor year and an unfinished line. About 43 miles remain to be built to reach San Antonio, upon which work is now in progress. The net earnings for November and December were $83,000.

Boston, Lawrence & Haverhill.

This narrow-gauge project has been extended so as to make the terminus of the line at Dover, N. H., instead of Haverhill, Mass. A preliminary survey is now being made of the line from Haverhill to Dover. The extension will probably be built by a separate corporation, which is to be organized for that purpose.

Texas & New Orleans.

A force of about 500 men is at work on the reconstruction of this road, and the work is well advanced all along the line. The track is now completed on the eastern end for 10 miles west from Beaumont, Tex., and the iron is being laid rapidly.

New Orleans Pacific.

The Mayor of New Orleans has vetoed the ordinance to submit to the people the question of voting a tax of five mills for several years in aid of this road. His chief objections are the burdensome nature of the tax and the fact that the construction of the road has been begun at Alexandria, more than 200 miles from New Orleans. There is much difference of opinion in the city as to the tax, and it is thought doubtful whether the popular vote would be in favor of it. The City Council, however, passed the ordinance over the veto and the election will be held.

Chesapeake & Ohio.

The amount of the bonds whose owners have joined in the plan of reorganization and voted for members of the Committee of Purchase and Reorganization is $8,904,900 first mortgage and $10,438,000 second mortgage. The committee chosen is that nominated by the parties who prepared the plan, and is as follows: A. A. Low, C. P. Huntington, John Castree, A. S. Hatch, New York; Isaac Davenport, Jr., Richmond, Va.

The committee met in New York, April 15, and elected A. S. Hatch, Chairman, and J. J. Tracy, Secretary.

Georgia Railroad Taxation.

The appeal of the Central and Southwestern Companies from the decision of the Georgia Supreme Court holding their property liable to taxation under the State law of 1874, was argued before the United States Supreme Court, April 6. The claim of the companies for exemption is based upon a clause in the original charter of each, which provided that no tax greater than one-half of one per cent. of the net income should

be levied upon either road. The Central has since been consolidated with the Macon & Western and the Southwestern with the Muscogee Company, but it is claimed that these consolidations do not affect the contract involved in the original charters. The Georgia Court held, however, that these consolidations brought both companies under the general law of 1868, which defined all railroad corporations as private corporations, whose franchises were subject to the reserved rights of the State to amend or withdraw them.

Denver & Rio Grande.

The track is now laid to Elmor, Col., 38 miles southward from the late terminus at Cucharas, 88 miles from Pueblo, and 208 from Denver. An excursion train went through to Elmor April 16, and regular trains begin running this week. The company now owns 248 miles of track, the main line, 208, and the Canon Branch, 40 miles.

New Bedford & Middleboro.

An election is to be held in New Bedford, Mass., April 24, on the question of a city subscription to the stock of this proposed road.

Portland & Ogdensburg.

The work of completing the section between Johnson, Vt., and Swanton is delayed by the difficulty of obtaining money. The contractors, Hogan & Co., have been unable to sell a large amount of bonds received by them, about $200,000, it is said, and are consequently in a somewhat embarrassed condition. It is said the sub-contractors and laborers have not been paid off for four months, and many of them are suffering in consequence. But little work can probably be done until this money embarrassment is settled.

Texas & Pacific.

A suit has been begun to recover from this company the property deeded to it by the city of San Diego, Cal., which is valued by the city at $5,000,000. The property was given to the company in consideration of the construction of a railroad from San Diego to the Colorado River, and the suit is brought in consequence of the company's failure to perform any of the conditions of the contract.

Lime Rock.

A company by this name has been organized to build a railroad from a point on Monterey Bay in the town of Santa Cruz, Cal., to a point near the summit of the Santa Cruz Mountain, about nine miles distant, with a branch one mile long to a lime-kiln in Santa Cruz. The capital stock is $200,000. The road is to be of 3-feet gauge and is intended chiefly for the transportation of limestone and rock.

New York Central & Hudson River.

About May 15 this company intends to put on a number of additional local trains, to run from the Grand Central Depot in New York to Williamsbridge, over the Harlem Division, the distance being about 10 miles. From the depot to Harlem these trains will run on the two outer or local tracks of the Fourth Avenue Improvement, and will make a number of stops. It is said that at the same time the street cars from the Grand Central Depot to the lower part of the city will be run on quicker time, so that this line will give an approach to rapid transit to points in upper New York and lower Westchester. The engines which will run these suburban trains are on the Forney plan and are now being built at the Schenectady Locomotive Works.

Mackinaw & Marquette.

The offer to build this road, made recently by some Eastern parties, has been withdrawn.

Covington, Columbus & Black Hills.

Cedar County, Nebraska, has voted to subscribe $150,000 in bonds to this company's stock. The surveys of the road are nearly completed.

Michigan Lake Shore.

A judgment for $240,000 against this road was entered, April 10, in the United States Circuit Court in Grand Rapids, Mich., in favor of Albert Keep, Chester Warner and J. H. Wade. The judgment is for bonds and over-due interest.

Boston, Clinton & Fitchburg.

It is now claimed that the consolidation of this company with the New Bedford Railroad Company is pretty sure to be carried through. In that event it is said that the controlling interest in the consolidated company will be owned by the New Bedford party, and the headquarters of the company will probably be in that city.

The directors of the Boston, Clinton & Fitchburg have voted to present a proposal for consolidation which provides for the issue of $75 consolidated stock for each $100 Boston, Clinton & Fitchburgh stock, and $110 consolidated for each $100 New Bedford stock. The New Bedford Company has appointed a committee to confer with the other party as to terms.

New Jersey West Line.

Under the recent decision of the Court of Errors, Messrs. Randolph and Clark, the trustees under the first mortgage, have taken possession of the road. They have appointed as their agent Col. Wm. P. McMichael of Bordentown, formerly Superintendent of the Camden & Amboy and more recently State Treasurer. The sale of the road will be had as soon as an inventory is taken and other necessary preliminaries can be arranged. The principal holders of bonds are Hon. Asa Packer, President of the Lehigh Valley Company, and the Beckman estate; the Central of New Jersey and Delaware, Lackawanna & Western are also said to hold considerable amounts.

Northern, of Long Island.

It is said that large local subscriptions have been promised for this projected line, and that arrangements are being made to survey the line and begin work soon. It is proposed to make the line of 3-feet gauge, to start from the East River at South Thirteenth street, Brooklyn, and to run by a pretty direct line to Northport, about 35 miles. Provision is to be made for future extension eastward from Northport and for such branches as local interests may seem to make desirable. Such a line, if built, will come into direct competition with the Flushing, North Shore & Central at almost every station.

Albany & Susquehanna.

The proposed amendments to the lease of this road by the Delaware & Hudson Canal Company have been agreed to by both companies, and the amended lease placed on record. It provides that the capital stock is to be fixed and limited at $3,500,000, on which the lessee is to pay dividends of 7 per cent. annually. The clause of the old lease giving 25,000 shares a preference is annulled, and in consideration thereof the lessee, whenever the $1,000,000 Albany city bonds are paid off, is to apply the $70,000 now paid annually into the sinking fund to the payment of additional dividends on the stock, making them 9 per cent. annually. The Albany & Susquehanna Company is to execute a first consolidated mortgage for $10,000,000 to the Farmers' Loan & Trust Company as trustee, the bonds to bear 6 or 7 per cent. interest, as may be deemed best, and to have 30 years to run. Of these new bonds $3,450,000 are to be reserved to exchange for outstanding bonds; $1,595,000 are to be issued to the lessee in exchange for an equal amount of stock now held by it, which stock is to be surrendered and canceled; a further amount is to be issued to the lessee sufficient to pay for improvements heretofore made on the road, and the balance is to be issued as the lessee may require. These new bonds are to be guaranteed, principal and interest, by the lessee, and provision is made for renewing them when the 30 years shall have expired; but the amount of stock and bonds outstanding shall at no time exceed $13,500,000.

South Mountain.

An effort is to be made to finish up the grading and prepare the road for the track this season, so that advantage can be taken of the present low prices of rails and other material. A survey is to be made for a branch line from Fredericksburg, Pa., to Lebanon, to secure a share in the trade of that thriving borough and also to reach some large deposits of iron ore, which will furnish considerable traffic.

North Brookfield Branch.

At the annual meeting in North Brookfield, Mass., April 10, President Nye reported that the lease of the road to the Boston & Albany was virtually concluded, but not yet signed, that company having asked for delay as a matter of convenience. There is a balance of $5,344 in the treasury. The income of the road (4¼ miles long) is about $1,000 per month, which is quite as much as was expected.

Ponchartrain.

This road, which is one of the oldest in the United States, extends from New Orleans north to Lake Ponchartrain. In 1872, the New Orleans, Mobile & Texas Company bought 7,288 shares of the stock, desiring to use the charter to secure its entrance into New Orleans, and other franchises. Subsequently 7,118 shares of this stock were transferred to L. Von Hoffman & Co., as trustees, the remainder being distributed among the directors. Recently the local stockholders, representing in all 382 shares, filed an application for a receiver, the complaint setting forth that the Mobile Company has been twice insolvent; that the ownership of the shares bought by it is in dispute; that the non-resident directors pay no attention to the affairs of the Ponchartrain Company, and the interests of the local stockholders are in danger of loss. The court took the petition and appointed Daniel B. Robinson Receiver. Under its orders the Receiver subsequently took possession of the road and property.

Leavenworth, Lawrence & Galveston.

Notice is given that in the foreclosure proceedings now pending in the United States Court for Kansas, it is deemed desirable by many bondholders to obtain, if may be, a strict foreclosure, that is, a foreclosure that will vest the title to the property in the bondholders directly, instead of an ordinary decree of foreclosure and sale, which may enable those bondholders who have means to combine and buy the road in at a diminished price. It is possible that a strict foreclosure cannot be had, and it is desired in that case that all the bondholders who are willing and can be found associate in the purchase of the road. Two subscription lists, providing for both alternatives, have been prepared and are placed for signature in the company's office, No. 26 Sears Building, Boston. Bondholders are requested to sign the same by April 25, as the next term of the court begins early in May, and it is desirable that action be taken at that term.

Boston & New York Air Line.

A temporary track has been built around the broken trestle at Wallingford, Conn., and there is no interruption at that point. Piles are being driven for the temporary trestle to take the place of the span carried away from the bridge over the Connecticut, at Middletown, by the steamboat City of Hartford, and trains will soon run through again.

Cross suits for damages from the Middletown accident have been begun, the railroad company claiming $40,000 for damage to the bridge and interruption to business, and the steamboat company $25,000 for damages to the boat. Some nice points of law are involved.

Columbus & Toledo.

At the annual meeting in Columbus, O., April 12, the President reported that on Aug. 16 last the contract for the construction of the road was let for $1,900,000, of which $825,000 is payable in cash and $1,075,000 in bonds at par. This includes grading, bridging, rails and track-laying, the rails to be 60 lbs. to the yard, one-half iron and one-half steel. Seven installments of 10 per cent. each have been called in on the stock. In order to secure prompt payment it was resolved to charge 6 per cent. interest on all installments unpaid after June 1, 1875, and to allow 8 per cent. on all prepayments.

The Chief Engineer reports the right of way all secured except 5.43 miles in Wood County, which is now undergoing condemnation, and 2.53 miles at other points where legal formalities are necessary to complete title. On April 1 the condition of the grading and masonry was as follows: Columbus to Delaware, 70 per cent. of grading and 50 per cent. of masonry done; Delaware to Marion, substantially finished; Marion to Upper Sandusky, 60 per cent. of grading and 10 per cent. of masonry done; Upper Sandusky to Fostoria, 65 per cent. of grading done; Fostoria north 55 per cent. of grading done. Tracklaying will be begun this month.

The financial position of the company is good, and there is no obstacle to the steady prosecution of work and the early completion of the road.

Boston & Newton.

Several meetings have been held to consider the question of building a narrow-gauge suburban road from Boston to Newton, some seven or eight miles. A company is to be organized as soon as some preliminary arrangements can be completed.

Train Accidents in March.

Shortly after midnight of the 1st five cars of a freight train on the Toledo, Wabash & Western road were thrown from the track by a misplaced switch at Illiopolis, Ill., blocking the track five hours.

On the afternoon of the 1st the engine of a freight train on the Pittsburgh, Cincinnati & St. Louis road exploded its boiler while the train was standing on a siding at Hollidaysburg, Pa. The engine was destroyed, the engineman, fireman and two brakemen killed. The cause of the explosion is reported to have been low water.

On the evening of the 1st as a mixed train on the Grand Trunk Railway was approaching the wooden bridge over the canal slip in Buffalo, N. Y., the engine was thrown from the track by a misplaced switch, and, running upon the bridge on the ties, broke through and went down into the slip, carrying two cars with it. The engineman was caught in the running gear of the engine, which continued to move after it fell, and was torn to pieces, only a part of his body being found.

Early on the morning of the 2d as a passenger train on the Southeastern Railway of Canada was near Farnham, P. Q., one of the driving axles of the engine broke close up to the hub of the wheel and the wheel rolled off the track into a field, tearing out the connecting rod.

On the 2d a freight train on the Harlem Extension road ran off the track at Wallingford, Vt.

On the 2d an east-bound freight on the Central Ohio Division of the Baltimore & Ohio road ran into the rear of a preceding freight which was stopping at Cassell's, O., wrecking a caboose and five cars, and damaging an engine badly. The road was blocked five hours.

On the night of the 2d ten cars of a freight train on the Missouri, Kansas & Texas road were thrown from the track on the Otter Creek trestle near Stoutsville, Mo., and went down into the creek.

On the night of the 2d a snow-slide carried away a snow-shed on the Central Pacific near Cisco, Nev., and shortly afterwards a freight train ran into the wreck and was thrown from the track. While the train stood there another slide came down, crushing several cars.

On the morning of the 3d a car in a west-bound freight train on the Troy & Greenfield road ran off the track near Bardwell's Ferry, Mass., and before the train could be stopped it ran upon the bridge over the Deerfield River and the car went over the bridge and into the river, taking four others with it. The bridge was somewhat damaged.

On the 3d a car of a passenger train on the Davenport & St. Paul road ran off the track and upset at Monticello, Ia.

On the afternoon of the 3d as a freight train on the Baltimore & Ohio was crossing the bridge over the Maumee River at Delaware Bend, O., a drawbar pulled out and fell on the track, throwing several cars from the rails. The cars went down into the river, carrying down the east span of the bridge with them. Three trainmen were badly hurt.

On the evening of the 3d a car in a passenger train on the Chicago, Burlington & Quincy road ran off the track in the depot at Burlington, Ia.

On the afternoon of the 4th, on the Cincinnati, Hamilton & Dayton road, near Glendale, O., there was a butting collision between a south-bound express and a north-bound local train, by which both engines were badly wrecked, an engineman killed, four trainmen and three passengers hurt. The local train, whose run was only to Glendale, was behind time, but had the right of way; the express should have waited at Glendale, but did not stop. The reason cannot be known, as the engineman was killed, but it is believed that he thought the other train had already reached the station. Both trains were equipped with Westinghouse brakes and Miller platforms, and none of the cars were much damaged.

On the night of the 4th an express train on the Harlem Extension road struck a broken rail near South Shaftsbury, Vt., throwing the two rear cars from the track.

Very early on the morning of the 5th a car in a freight train on the Troy & Greenfield road ran off the track near Greenfield, Mass., and ten others followed it, most of them being piled up in a cut and badly broken, knocking down a highway bridge crossing the track at that point. This was the third accident of a similar kind on the road within a few days.

On the morning of the 5th the sleeping coach on an express train on the Erie Railway got off the track at Basket, N. Y., and was dragged some distance over the ties.

On the afternoon of the 5th as a passenger train on the Pittsburgh, Cincinnati & St. Louis road was entering Chicago it ran into a Chicago, Danville & Vincennes freight train, which, for some unknown reason, had been left standing on the main track. Several freight cars were broken up, the passenger engine was damaged and the engineman hurt.

On the afternoon of the 5th the limited mail train on the Pennsylvania Railroad struck a rock which had rolled upon the track on a curve near Warrior Ridge, Pa., and the engine was thrown from the track, ran some distance on the ties and upset down a bank, breaking itself badly and killing the engineman.

On the afternoon of the 5th a Chicago, Rock Island & Pacific switching engine ran over an open switch and into the head of a Peoria, Pekin & Jacksonville freight which was coming out of a siding in the yard at Peoria, Ill. Both engines and two cars were damaged. There appears to have been a misunderstanding about signals.

On the night of the 5th there was a collision between two engines at the crossing of the Missouri River, Fort Scott & Gulf and the Hannibal & St. Joseph tracks in Kansas City, Mo., and the Hannibal & St. Joseph engine was upset in the ditch and badly broken.

On the night of the 5th an express train on the Pittsburgh, Cincinnati & St. Louis road struck a broken rail near Columbus, O., and the engine was thrown from the track and upset, killing the engineman and injuring the fireman.

Early on the morning of the 6th an express train on the Grand River Valley Division of the Michigan Central was thrown from the track by a wash-out in a cut at Ball's Crossing, Mich. The engine went into the ditch and three cars were piled up on it and badly broken. The engineman and fireman were hurt.

On the 6th a freight train on the Peoria, Pekin & Jacksonville road was thrown from the track on a bridge near Pekin, Ill., by the spreading of the rails.

On the 6th a freight train on the Cairo & St. Louis road was thrown from the track near Chester, Ill., by the spreading of the rails, blocking the track all day.

On the afternoon of the 6th, ten cars of a freight train on the Vermont Central Railroad were thrown from the track near West Hartford, Vt., and a brakeman was badly hurt.

Late on the night of the 6th, as a mixed train on the Harper's Ferry & Valley Branch of the Baltimore & Ohio road was crossing the Narrow Passage bridge, near Woodstock, Va., the bridge gave way under the engine and the whole train, consisting of 16 stock and freight and one passenger car fell about 120 feet into the creek below, and was piled up in a complete and terrible wreck. The engineman, three brakemen and seven passengers were killed; the conductor, fireman and five passengers badly hurt. The part of the bridge which fell was a wooden trestle, built by the Manassas Gap Company to replace one built during the war. Since the lease of this section of road by the Baltimore & Ohio, that company had strengthened the trestle, and had begun to replace it by an iron bridge, the piers and two spans of which were already completed, the third or middle span being still occupied by the old trestle, although the iron span would have been erected in a short time. The bridge spans a deep and narrow ravine, as its name indicates, through which the Narrow Passage creek flows towards the Shenandoah River. The trestle, although so soon to be taken down, was believed to be in good condition, and it is thought possible that the fall was caused by the engine jumping the track.

Early on the morning of the 7th, an excursion train on the Atchison, Topeka & Santa Fe road struck a cow near Fort Dodge, Kan., and a snow-plow and two engines went into the ditch and were badly broken.

On the morning of the 7th, a train on the Erie Railway struck a broken rail near Smithboro, N. Y., and two emigrant cars and one passenger car left the track. One of the emigrant cars went into a culvert and was badly broken.

On the morning of the 7th a car of a train on the Missisquoi Railroad was thrown from the track near St. Albans, Vt., by the spreading of the rails.

On the morning of the 7th the engine and 11 cars of a freight train on the Michigan Central road were thrown from the track by a misplaced switch at the Grand Trunk Junction, near Detroit, Mich.

Near noon on the 7th as a freight train on the Pennsylvania Railroad was backing in the yard at Altoona, Pa., it ran into a powder car, breaking in one end of it.

On the evening of the 7th a mixed train on the Brunswick & Albany road was thrown from the track on a trestle near Waycross, Ga., by the spreading of the rails. Three freight cars were wrecked, two others damaged and several bents of the trestle broken.

On the night of the 7th a freight train on the Pittsburgh, Cincinnati & St. Louis road struck a wood car which had been run out of a siding at Ogden, Ind., and the engine and five cars were piled up and badly broken. It is said that the car was purposely run out by parties unknown.

Just after midnight on the morning of the 8th an express

train on the Cincinnati, Lafayette & Chicago road struck a broken rail near Atchison, Ind. The rear car, a sleeper, left the track and upset, dragging three other cars after it. The sleeper was badly broken and 20 passengers were hurt, most of them slightly.

Very early on the morning of the 8th a stock train on the New York Central & Hudson River ran into the rear of another at the stock yards in New York, throwing three cars down a bank, breaking another badly and killing a lot of stock. The accident was caused by a misplaced switch.

Very early on the morning of the 8th a freight train on the St. Louis, Iron Mountain & Southern road ran over a cow near Little Rock, Ark., throwing nearly the whole train from the track, wrecking several cars and injuring two men.

Near noon on the 8th, as a train on the Jeffersonville, Madison & Indianapolis road was running down the incline at Madison, Ind., without an engine, it struck a cow and three cars were thrown from the track, one of them upsetting and injuring five persons.

Near midnight on the 8th a west-bound freight train on the Erie Railway ran into a preceding freight at Goshen, N. Y., throwing five cars in a heap against the depot, damaging both cars and building considerably.

Early on the morning of the 9th the fast mail train on the Lake Shore & Michigan Southern road ran over a misplaced switch and into the head of a freight train which was standing on a siding at Laporte, Ind. The mail was delayed an hour.

On the afternoon of the 9th the engine and three cars of a train on the European & North American road were thrown from the track near Fredericton Junction, N. B., by the breaking of an axle under the engine.

On the evening of the 9th the engine and two cars of a freight train on the Erie Railway were thrown from the track at Hawthorne, N. J., by the spreading of the rails.

Early on the morning of the 10th a mail train on the Northern Central road ran into a land-slide near Herndon, Pa., and the engine, tender, baggage and mail cars were thrown from the track and badly broken, injuring four trainmen and a passenger.

On the afternoon of the 10th as an engine on the Pennsylvania Railroad was backing upon a siding at Mifflin, Pa., the throttle lever got fast and the engine could not be stopped and ran into some cars, breaking one of them and injuring two men.

On the morning of the 11th there was a butting collision between two freight trains on the Vermont & Massachusetts Division of the Fitchburg Railroad at Miller's Falls, Mass., by which both engines and seven cars were damaged and a fireman killed.

On the morning of the 12th a freight train on the Erie Railway ran off the track at Greycourt, N. Y., blocking the track four hours.

Very early on the morning of the 13th as an Indianapolis, Bloomington & Western engine had just backed into the depot at Indianapolis to take out an express train, the boiler exploded, the side of the fire-box being torn out, the engine destroyed and the brick wall of the depot torn down by the explosion. The engineman and fireman of the engine escaped, but the falling wall crushed in the cab of another engine standing on an adjoining track, killing one man and injuring another. A committee of master mechanics who subsequently examined the engine agreed that there had been plenty of water and no undue pressure of steam, but that the iron was of poor quality and there was an old crack in the seam connecting the side and crown sheets, caused probably by careless caulking.

On the 13th a snow-plow and two of the engines attached to it were thrown from the track in a heavy drift near Otego, Nev., on the Central Pacific, both engines being badly broken.

On the morning of the 14th a snow-plow and two engines on the Central Pacific road went off the track in a drift near Wells, Nev., and ran down a bank, breaking themselves badly, killing a fireman and injuring an engineman severely.

On the 14th a wheel broke under a car of a passenger train on the Atlanta & West Point road, near Grantville, Ga., throwing the car from the track.

On the afternoon of the 14th a coal train on the Pennsylvania Railroad ran into the rear of a way freight which was standing on the track at Wynnewood, Pa., wrecking the engine and several cars and blocking the road several hours.

On the afternoon of the 14th an engine on the Erie Railway ran off the track at Paterson, N. J.

On the night of the 14th, as a passenger train on the Missouri Pacific road was making a flying switch at Boenville, Mo., a passenger car ran into the rear of a freight, doing some damage to both.

Early on the morning of the 15th an express freight train on the Eastern Railroad ran off the track at South Berwick, Me., wrecking several cars and blocking the road four hours.

Near noon on the 15th the engine and eight cars of a freight train on the Atlantic & Pacific road went through the bridge over the Meramec River, wrecking the cars, killing the engineman and injuring a brakeman. The span which gave way was 80 feet long, a combination truss and had been built about four years.

Early on the morning of the 16th, the four rear cars of a freight train on the St. Louis, Iron Mountain & Southern road ran off the track near De Soto, Mo., blocking the track some time and injuring three trainmen.

On the 16th, an express train on the Boston, Concord & Montreal road ran into some freight cars which had been blown by a high wind from a siding upon the main track at East Haverhill, N. H. The engine was wrecked and the baggage car thrown from the track.

On the 16th, a Cleveland, Columbus, Cincinnati & Indianapolis switching engine was thrown from the track by the spreading of the rails on a siding in Indianapolis.

On the evening of the 16th, as a train on the Chicago, Burlington & Quincy was near Earlville, Ill., some stay-bolts about the fire-box of the engine gave way, causing a rupture in the back-sheet, and the steam and hot water rushed into the cab, scalding the fireman fatally and the engineman and a brakeman badly.

On the morning of the 17th, a passenger train on the Toledo, Wabash & Western road ran over some horses near Kinderhook, Ill., and the engine was thrown from the track and upset in the mud.

On the 17th, a freight train on the Toledo, Peoria & Warsaw road was thrown from the track near La Harpe, Ill., blocking the road six hours.

On the 17th an engine on the College Hill Railroad ran off the track in Cincinnati, O., and was considerably damaged.

On the morning of the 18th, as a freight train on the Northwestern Union Division of the Chicago & Northwestern road was running along the Lake Shore embankment in Milwaukee, Wis., the bank, which had been undermined during a heavy storm on the lake, gave way and the engine went down into the water, the three following cars being piled up on it and badly broken. The engineman and fireman were killed.

On the morning of the 18th the engine of a construction train on the Delaware & Bound Brook road ran off the track near Bound Brook, N. J. The engineman was thrown off and badly hurt.

On the afternoon of the 19th the engine and three cars of a train on the Port Royal Railroad were thrown from the track near Brunson's, S. C., by the breaking of a truck wheel under the engine. The road was blocked eight hours and the engine badly broken.

Early on the morning of the 20th an axle broke under the tender of an express train on the Southwestern Division of the Chicago, Rock Island & Pacific, near Gallatin, Mo., throwing the tender and two cars from the track and blocking the road 10 hours.

On the morning of the 20th the passenger car of a train on the Buda & Bushville Branch of the Chicago, Burlington & Quincy was thrown from the track by a broken rail near St. David, Ill., damaging the car badly and injuring four passengers.

Early on the morning of the 21st a train on the Old Colony road was thrown from the track by a washout near Tiverton, R. I., injuring a trainman and two passengers. The road was blocked three hours. Three cars of the train left the track, one of them turning over on its side.

On the 21st a train on the New London Northern road went into a washed-out culvert near Norwich, Conn., and two cars were somewhat broken, hurting one passenger.

On the afternoon of the 21st a train on the Boston & Lowell went through a culvert near North Lexington, Mass., the foundation of which had been washed out during a storm. The conductor was injured.

On the night of the 21st an express train on the Erie Railway struck a broken rail near Swayne's, N. Y., and part of the train was thrown from the track.

Very early on the morning of the 22d an express train on the Indianapolis, Cincinnati & Lafayette road struck a broken rail near Lafayette, Ind., throwing four cars from the track and injuring two passengers.

On the morning of the 22d an overloaded car in a train on the Quincy, Missouri & Pacific broke down and threw three others from the track, blocking the road four hours.

On the morning of the 22d a train on the Syracuse & Chenango road was thrown from the track near Norwich, N. Y., by the breaking of a wheel under the tender.

On the 22d a train on the Scioto Valley road was thrown from the track near Circleville, O., by the spreading of the rails, which had just been laid and were not securely spiked.

On the afternoon of the 22d a passenger train on the Rome, Watertown & Ogdensburg road struck a broken rail near Taberg, N. Y., and the engine was thrown from the track, delaying trains five hours.

On the evening of the 22d a car of a freight train on the Erie Railway was thrown from the track by a broken axle, near Owego, N. Y., blocking the track three hours.

Early on the morning of the 24th a freight train on the Erie Railway broke in two near Port Jervis, N. Y., and the rear section afterwards ran into the forward one, damaging several cars and injuring the conductor somewhat.

On the morning of the 24th, on the Chicago & Northwestern road, near Oshkosh, Wis., there was a butting collision between a freight and an ice train, by which both engines were badly broken and a fireman hurt.

On the morning of the 24th a express train on the St. Louis, Iron Mountain & Southern road ran into a wash-out near Malvern, Ark., the engine, baggage, mail and one passenger car going into the ditch. The mail agent and express messenger were hurt.

On the 24th a passenger train on the New York & Canada road struck a rock which had fallen upon the track near Willsboro, N. Y., damaging the engine and throwing the whole train from the rails.

On the evening of the 24th a shifting engine in the Concord Railroad yard at Manchester, N. H., ran into the head of a freight train which was just stopping at the wood-shed, damaging both engines.

Late on the night of the 24th a car of a freight train on the New York Central & Hudson River was thrown from the track in a snow-bank near Albion, N. Y.

A few minutes after an express train ran into the rear of the freight, damaging the engine and several cars and injuring a passenger. One of the passenger cars caught fire from the stove, but was quickly extinguished. The freight sent back a signal, but it was not seen on account of the heavy snow.

Very early on the morning of the 25th the engine of a freight train on the New York Central & Hudson River road broke down near Fonda, N. Y., and shortly after a following freight ran into its rear, wrecking its own engine and several cars and blocking the track half a day. The first train sent back a signal which was not seen, owing to a heavy snow storm.

On the afternoon of the 25th a passenger train on the New Jersey Midland road ran into a wash-out near New Durham, N. J., and the engine and one car went into the ditch, injuring the fireman.

On the afternoon of the 25th a train on the Chicago & Lake Huron road struck a broken rail near Schoolcraft, Mich. The engine passed over, but all the rest of the train went into the ditch and two cars upset, breaking themselves badly and injuring two passengers.

On the night of the 25th two cars of a freight train on the Rensselaer & Saratoga road were thrown from the track in a heavy snow-drift near Castleton, Vt.

On the night of the 25th a train on the New Haven & Northampton road went into a wash-out near Mt. Carmel, Conn., the engine and baggage-car going into the gap. The engineman was badly hurt.

On the morning of the 27th a stock train on the St. Louis, Keokuk & Northwestern road was thrown from the track near West Quincy, Mo., by the spreading of the rails. Five cars left the track, two of them upsetting and killing some stock.

On the 27th the engine of a train on the New York Central & Hudson River road ran off the track in the yard at Utica, N. Y., blocking the track some time.

On the 27th a freight train on the Old Colony Railroad ran off the track near Taunton, Mass., damaging 35 empty cars and blocking the road several hours.

Very early on the morning of the 28th, as a west-bound coal train on the Vandalia Line was just stopping to go into a siding at Bridgeport, Ind., an east-bound freight train ran into its head, breaking both engines badly, damaging several cars and injuring a brakeman. The coal-train conductor believed that he had plenty of time to make the siding, but it was snowing heavily, which prevented the signals from being seen in time by the freight.

On the morning of the 28th a train on the Newark Branch of the Erie Railway was thrown from the track at the Morris & Essex Junction near Bergen, N. J., by a misplaced switch and the engine went into the ditch burying itself deeply in the soft mud. Two cars upset and were badly damaged.

On the 28th an express train on the Chicago & Alton road ran off the track in a heavy snow-drift at Bloomington, Ill.

On the afternoon of the 28th several freight cars on the Philadelphia, Wilmington & Baltimore road ran off the track in Wilmington, Del., and one car was somewhat broken.

On the evening of the 28th a freight train on the Erie Railway ran off the track at Goshen, N. Y., blocking the east-bound track two hours.

On the evening of the 28th a freight train on the Pennsylvania Railroad, having a pushing engine at the rear end to help it over a grade near Tyrone, Pa., broke in two and the two sections afterwards came together, doing some damage and injuring a brakeman.

On the night of the 28th an engine and snow plow on the Toledo, Wabash & Western ran into the head of a passenger train near Springfield, Ill., damaging both engines somewhat. They were both butting at the same snow-bank, contrary to orders, it is said, and had over-estimated the resistance of the snow.

On the morning of the 29th an express freight train on the New York Division of the Pennsylvania Railroad struck a cow near Metuchen, N. J., and the engine was thrown from the track, delaying the train one hour.

On the afternoon of the 29th a freight train was standing on the track of the Concord Railroad near Martin's Ferry, N. H., and in the rear of it was another engine, both waiting for a wash-out to be repaired so that they could pass. A signal had been sent back, but a following passenger train failed to see it in time and struck the standing engine, driving it forward into the freight train. Both engines, six freight cars and the baggage car of the passenger train were badly broken, the fireman of the passenger, Assistant Superintendent Hildreth and a road-master, who were on the engine were injured.

On the morning of the 30th a passenger train on the Rutland Railroad ran off the track in Burlington, Vt., damaging several cars and blocking the road five hours.

On the morning of the 30th a passenger train on the Niagara Falls Branch of the New York Central & Hudson River struck a heavily loaded sleigh at a street crossing in East Buffalo, N. Y., and the engine was thrown from the track, and, after running some distance on the ties, upset and dragged the tender and one car after it. The engineman was somewhat hurt, and the track was blocked four hours.

Near noon on the 30th a freight train on the Chicago, Burlington & Quincy road was thrown from the track by the spreading of the rails near Fairfield, Ia. Six cars left the track, two of them running on a bridge and falling over into the creek below. Two men, who were stealing a ride, were killed.

On the 30th a freight train on the Chicago, Rock Island & Pacific road was thrown from the track by a wash-out near Washington, Ia.

On the 30th the engine of a freight train on the Indianapolis, Bloomington & Western road ran off the track in a heavy snow-drift near Lincoln, Ill., and upset.

On the night of the 30th the engine and some cars of a freight train on the Indianapolis & St. Louis road were thrown from the track by a misplaced switch in Indianapolis.

About 7 o'clock on the morning of the 31st, as a coal train on the Tyrone & Clearfield Branch of the Pennsylvania Railroad was going over a heavy grade at Sandy Ridge, Pa., with an engine in front and two pushing in the rear, the boiler of the forward pusher suddenly exploded. The rear end of the boiler was torn completely out and thrown some distance back, killing the engineman and hurting the fireman very badly, while the forward part of the engine was lifted up and thrown over upon the rear car of the train, killing two brakemen. No cause is assigned for the explosion.

Near noon on the 31st, the engine of a freight train on the Southwestern Division of the Chicago, Rock Island & Pacific road exploded its boiler while standing on a siding at Plattsburg, Mo. The fireman and a brakeman were slightly injured. No cause is assigned for the explosion.

On the night of the 31st, the engine and several cars of a train on the St. Louis, Iron Mountain & Southern road were thrown from the track near Traskwood, Ark., by a tree which had been blown down across the track. The engineman was badly hurt.

This is a total of 109 accidents, whereby 30 persons were killed and 95 injured. Thirteen accidents caused the death of one or more persons, 29 caused injuries but not death, while 58, or 55.8 per cent. of the whole, caused no injury serious enough for record.

These accidents may be classified as to their nature and causes as follows:

COLLISIONS:		
Rear collisions	15	
Butting collisions	6	
Crossing collisions	1	
		— 22
DERAILMENTS:		
Unexplained	20	
Broken rail	9	
Wash-out	9	
Spreading of rails	9	
Snow	6	
Accidental obstruction	5	
Misplaced switch	5	
Cattle on track	5	
Broken axle	3	
Broken wheel	3	
Broken bridge	2	
Land-slide	2	
Overloaded car	1	
		— 79
Boiler explosion		6
Broken axle, not causing derailment		1
Total		109

Two collisions were caused by mistake in giving or receiving orders, by misplaced switches, by trains breaking in two, and by cars run or blown out of sidings; one certainly, and probably more, by failure to use signals properly, and one in making a flying switch. Thirty-six accidents were caused by failure or defect of road or equipment. The number of collisions is rather below the average, and misplaced switches are fewer than for some months past. As compared with March, 1875, there is a decrease of 13 accidents; an increase of 13 in the number killed, and of 22 in the number injured.

The month of March was the most unfavorable of the winter for railroading. In it there were several of the severest storms of the winter, snow in some sections and rain in others, and there was an altogether undesirable combination of the snow blockades of winter and the wash-outs and land-slides of spring. The result is apparent in broken rails, in snow accidents and in wash-outs and land slides. There is also an unusual number of cases of spread rails, resulting, probably, from softening of the road-bed by rain or flood. Several unusually fatal accidents are recorded, and the number of deaths and injuries is above the average. Two bridges are recorded as giving way, one a wooden truss, the other an old trestle which was being replaced by an iron bridge.

For the year ending with March the record is as follows:

	No. of accidents.	Killed.	Injured.
April	60	9	67
May	54	6	43
June	61	23	67
July	73	33	50
August	114	27	139
September	116	50	183
October	86	13	74
November	87	24	97
December	84	13	61
January	60	8	29
February	91	15	68
March	109	30	98
Totals	997	249	977

The averages per day were for the month 3.52 accidents, 0.96 killed and 3.06 injured; for the year they are 2.73 accidents, 0.68 killed and 2.59 injured. The averages for the month are thus above those for the year in each item. The average number of casualties to each accident are, for the month, 0.36 killed and 0.87 injured; for the year 0.25 killed and 0.95 injured.